



## SEQUENCE LISTING

<110> Microbial Technics limited  
Le Page, Richard W F Wells, Jeremy M  
Hanniffy, Sean B

<120> Proteins

<130> PWC/P21978WO

<140> PCT/GB00/03437

<141> 2000-09-07

<150> GB 9921125.2

<151> 1999-09-07

<160> 276

<170> PatentIn version 3.0

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<212>  PRT
<213> Streptococcus agalactiae

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Pro Glu Gln Gly Asn Tyr Val Tyr Ser Lys Glu Thr Glu Val Lys Asn
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Asp Val Lys Ser Gln Pro Lys Val Ser Ser Pro Val Glu Phe Asn Phe  
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Gln Lys Gly Glu Lys Ile His Tyr Asp Gln Val Leu Val Val Asp Gly  
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<213> Streptococcus agalactiae

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Leu	Asn	Ser	Lys	Arg	Ile	Lys	Gln	Leu	Arg	Gly	Lys	Asp	Ile	Thr	Leu
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Ile	Glu	Thr	Ala	Pro	Ala	Ser	Phe	Phe	Ser	Gly	Asn	Gly	Glu	Gln	Leu
225					230					235					240
Gln	Thr	Glu	Phe	Ala	Arg	Ser	Leu	Trp	Arg	Ser	Leu	Pro	Gln	Gln	Glu
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<212> DNA

<213> Streptococcus agalactiae

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Pro	Val	Phe	Thr	Val	Ser	Ile	Leu	Gly	Ile	Ala	Asn	Val	Thr	Leu	His
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	50					55					60				
Ala	Arg	Ala	Arg	Gly	Glu	Thr	Glu	Trp	Gln	Ile	Phe	Lys	Asn	His	Cys
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Leu	Arg	Asn	Ala	Ile	Val	Pro	Ala	Ile	Thr	Leu	His	Phe	Ser	Tyr	Phe
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Gly	Glu	Leu	Phe	Gly	Gly	Ser	Val	Leu	Ala	Glu	Gln	Val	Phe	Ser	Tyr
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Pro	Gly	Leu	Gly	Ser	Thr	Leu	Thr	Glu	Ala	Gly	Leu	Lys	Ser	Asp	Thr
		115					120						125		
Pro	Leu	Leu	Leu	Ala	Ile	Val	Met	Ile	Gly	Thr	Leu	Phe	Val	Phe	Ala
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<213>  Streptococcus agalactiae

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          50          55          60

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65          70          75          80

Leu Val Pro Phe Asn Ser Phe Arg Ser Leu Asp Gln Leu Thr Ser Phe
          85          90          95

Lys Glu Ile Phe Trp Val Ile Gly Gln Asn Val Val Asn Ile Leu Leu
          100          105          110

Leu Phe Pro Leu Ile Ile Gly Leu Leu Ser Leu Lys Pro Ser Leu Arg
          115          120          125

Lys Tyr Lys Ser Val Ile Leu Leu Ala Phe Leu Met Ser Leu Phe Ile
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Glu Cys Thr Gln Val Val Leu Asp Ile Leu Ile Asp Ala Asn Arg Val
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attggtgtgg gtaaaacgtt ttatatatttg ggattagtat atttttttgt catgatgatt 540  
gcctcacaat ttattaaaca accacctcag gaaaaataa ctattttgac tcacgatggg 600  
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gccttattag taggggtact aggatattt aacggttttg gacgtctgtt atgggcaagt 840  
ctctctgact acattggacg cccgttgacc ttataatat tattttattgt gaactttatt 900  
atgacttcta gtttattttt gtcattcaat gctattgtat ttgcaatagc gatgtctatt 960  
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<210> 12

<211> 406  
<212> PRT  
<213> Streptococcus agalactiae

<400> 12

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His	Leu	Met	Leu	Gly	Ser	Thr	Tyr	Ala	Trp	Ser	Val	Phe	Arg	Asn	Pro
			20					25					30		
Ile	Ile	Ser	Glu	Thr	Gly	Trp	Asp	Ile	Ser	Ser	Val	Ser	Phe	Ala	Phe
		35					40					45			
Ser	Leu	Ala	Ile	Phe	Cys	Leu	Gly	Met	Ser	Ala	Ala	Phe	Met	Gly	His
	50					55					60				
Leu	Val	Glu	Arg	Phe	Gly	Pro	Arg	Ile	Met	Gly	Met	Ile	Ser	Ala	Ile
65					70					75					80
Leu	Tyr	Gly	Ala	Gly	Asn	Val	Leu	Thr	Gly	Leu	Ala	Ile	Glu	Thr	Gln
			85						90					95	
Gln	Leu	Trp	Leu	Leu	Tyr	Val	Ala	Tyr	Gly	Ile	Leu	Gly	Gly	Ile	Gly
			100					105					110		
Leu	Gly	Ser	Gly	Tyr	Ile	Thr	Pro	Val	Ser	Thr	Ile	Ile	Lys	Trp	Phe
		115					120					125			
Pro	Asp	Arg	Arg	Gly	Leu	Ala	Thr	Gly	Phe	Ala	Ile	Met	Gly	Phe	Gly
	130					135					140				
Phe	Ala	Ser	Leu	Val	Thr	Ser	Pro	Leu	Ala	Gln	Ser	Leu	Leu	Ile	Arg
145					150					155					160
Ile	Gly	Val	Gly	Lys	Thr	Phe	Tyr	Ile	Leu	Gly	Leu	Val	Tyr	Phe	Phe
			165						170					175	
Val	Met	Met	Ile	Ala	Ser	Gln	Phe	Ile	Lys	Gln	Pro	Pro	Gln	Glu	Lys
			180					185					190		
Ile	Thr	Ile	Leu	Thr	His	Asp	Gly	Lys	Lys	Asn	Ala	Met	Asn	Ser	Gln
		195					200					205			
Ile	Ile	Thr	Gly	Leu	Lys	Ala	Asn	Val	Ala	Ile	Lys	Ser	Lys	Thr	Phe
	210					215					220				
Tyr	Ile	Ile	Trp	Leu	Thr	Leu	Phe	Ile	Asn	Ile	Ser	Cys	Gly	Leu	Gly
225					230					235					240
Leu	Ile	Ser	Ala	Ala	Ser	Pro	Met	Ala	Gln	Asp	Leu	Ala	Gly	Tyr	Ser
			245						250					255	
Ala	Glu	Ser	Ala	Ala	Leu	Leu	Val	Gly	Val	Leu	Gly	Ile	Phe	Asn	Gly
			260					265					270		

Phe Gly Arg Leu Leu Trp Ala Ser Leu Ser Asp Tyr Ile Gly Arg Pro  
 275 280 285  
 Leu Thr Phe Ile Ile Leu Phe Ile Val Asn Phe Ile Met Thr Ser Ser  
 290 295 300  
 Leu Phe Leu Ser Phe Asn Ala Ile Val Phe Ala Ile Ala Met Ser Ile  
 305 310 315 320  
 Leu Met Thr Cys Tyr Gly Ala Gly Phe Ser Leu Leu Pro Ala Tyr Leu  
 325 330 335  
 Ser Asp Ile Phe Gly Thr Lys Glu Leu Ala Thr Leu His Gly Tyr Ser  
 340 345 350  
 Leu Thr Ala Trp Ala Ile Ala Gly Leu Phe Gly Pro Leu Leu Leu Ser  
 355 360 365  
 Lys Thr Tyr Ser Trp Gly Asn Ser Tyr Gln Leu Thr Leu Met Val Phe  
 370 375 380  
 Gly Phe Leu Phe Leu Phe Gly Leu Leu Leu Ser Leu Tyr Leu Arg Lys  
 385 390 395 400  
 Leu Thr Thr Lys Val Val  
 405

<210> 13  
 <211> 303  
 <212> DNA  
 <213> Streptococcus agalactiae

<400> 13  
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 aaaattgaaa agcctgctct ttcgtttatg caagatgcgt ggcgtcgctt gaaaaaaaaac 120  
 aaattagcag tagtttctact ctatttatta gctcttttac ttactttttc gttagcctca 180  
 aatttatttg taactcagaa ggatgctaata gggtttgatt cgaaaaaagt aacgacatat 240  
 cgcaacttac cacctaaatt gagttcaaac cttccttttt ggaatggtag cattaatcca 300  
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<210> 14  
 <211> 101  
 <212> PRT  
 <213> Streptococcus agalactiae

<400> 14

Met Ala Asp Lys Asn Arg Thr Phe Lys Leu Val Gly Ala Gly Ser Ser  
 1 5 10 15  
 Ser Thr Gln Glu Lys Ile Glu Lys Pro Ala Leu Ser Phe Met Gln Asp

	20		25		30
Ala	Trp	Arg	Arg	Leu	Lys
	35				40
Asn	Lys	Leu	Ala	Val	Val
				45	Ser
Leu	Tyr				
Leu	Leu	Ala	Leu	Leu	Leu
	50			55	
Thr	Phe	Ser	Leu	Ala	Ser
				60	Asn
Leu	Phe	Val			
Thr	Gln	Lys	Asp	Ala	Asn
	65			70	
Gly	Phe	Asp	Ser	Lys	Lys
				75	Val
Thr	Thr	Tyr			
		80			
Arg	Asn	Leu	Pro	Pro	Lys
			85		
Leu	Ser	Ser	Asn	Leu	Pro
			90		Phe
Trp	Asn	Gly			
		95			
Ser	Ile	Asn	Pro	Ser	
		100			

<210> 15  
 <211> 678  
 <212> DNA  
 <213> Streptococcus agalactiae

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 attattaatg tagctccagc tatttttgag aaattcgcag gtcataaagt tatttttact 180  
 tttcgtacaa cgcgtgaagg tggtaatatt gtcttatctg atgctgagta tgttgagtta 240  
 atccagaaaa ttaattctat ctacaatcca gattatattg attttgagta tttttcacat 300  
 aaagaagttt ttcaagaaat gctagaattt ccaaatttag tctgtcttta tcacaatttt 360  
 caagagacac cggagaatat tatggagata ttttcagaat taacagccct agcaccacga 420  
 gttgtgaaaa tcgcagtaat gccaaagaat gaacaagatg tcttagacgt tatgaattac 480  
 actcgcgggt tcaagactat taatcctgat caagtttatg cgacgggtatc tatgagtaaa 540  
 attggacgta tttctcgttt tgctgggtgat gtaactggat ctagttggac atttgcata 600  
 ttagattcat ctatcgcacc cggacaaatt actatttcag agatgaagcg tgtcaaagca 660  
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<210> 16  
 <211> 225  
 <212> PRT  
 <213> Streptococcus agalactiae

<400> 16

Met	Lys	Ile	Val	Val	Pro	Val	Met	Pro	Arg	Ser	Leu	Glu	Glu	Ala	Gln
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Glu	Ile	Asp	Leu	Ser	Lys	Phe	Asp	Ser	Val	Asp	Ile	Ile	Glu	Trp	Arg		
		20						25					30				
Ala	Asp	Ala	Leu	Pro	Lys	Asp	Asp	Ile	Ile	Asn	Val	Ala	Pro	Ala	Ile		
		35					40					45					
Phe	Glu	Lys	Phe	Ala	Gly	His	Glu	Ile	Ile	Phe	Thr	Phe	Arg	Thr	Thr		
	50					55					60						
Arg	Glu	Gly	Gly	Asn	Ile	Val	Leu	Ser	Asp	Ala	Glu	Tyr	Val	Glu	Leu		
65					70					75					80		
Ile	Gln	Lys	Ile	Asn	Ser	Ile	Tyr	Asn	Pro	Asp	Tyr	Ile	Asp	Phe	Glu		
				85					90					95			
Tyr	Phe	Ser	His	Lys	Glu	Val	Phe	Gln	Glu	Met	Leu	Glu	Phe	Pro	Asn		
			100					105					110				
Leu	Val	Leu	Ser	Tyr	His	Asn	Phe	Gln	Glu	Thr	Pro	Glu	Asn	Ile	Met		
		115					120					125					
Glu	Ile	Phe	Ser	Glu	Leu	Thr	Ala	Leu	Ala	Pro	Arg	Val	Val	Lys	Ile		
	130					135					140						
Ala	Val	Met	Pro	Lys	Asn	Glu	Gln	Asp	Val	Leu	Asp	Val	Met	Asn	Tyr		
145					150				155						160		
Thr	Arg	Gly	Phe	Lys	Thr	Ile	Asn	Pro	Asp	Gln	Val	Tyr	Ala	Thr	Val		
				165					170					175			
Ser	Met	Ser	Lys	Ile	Gly	Arg	Ile	Ser	Arg	Phe	Ala	Gly	Asp	Val	Thr		
			180					185					190				
Gly	Ser	Ser	Trp	Thr	Phe	Ala	Tyr	Leu	Asp	Ser	Ser	Ile	Ala	Pro	Gly		
	195						200					205					
Gln	Ile	Thr	Ile	Ser	Glu	Met	Lys	Arg	Val	Lys	Ala	Leu	Leu	Asp	Ala		
	210					215					220						

Asp  
225

<210> 17  
 <211> 333  
 <212> DNA  
 <213> Streptococcus agalactiae

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tttatcgact ttcaaaaaaa tgagatgaca ggtacatggg gaatttctac taaaattaat	180
gaacaatttt cgattagttt ttctgaagat agaattggtg gtaaacttag agcattagga	240

tatcaaccga atgaaatagg tttttcaaag gacatcaata gtaataatca aaatgttaat	300
gatattgaag tgatttatat gaagaaagaa tag	333

<210> 18  
 <211> 110  
 <212> PRT  
 <213> Streptococcus agalactiae

<400> 18

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			20					25					30			
Gly	Asn	Gln	Ile	Lys	Lys	Ile	Glu	Phe	Ile	Asp	Phe	Gln	Lys	Asn	Glu	
		35					40					45				
Met	Thr	Gly	Thr	Trp	Gly	Ile	Ser	Thr	Lys	Ile	Asn	Glu	Gln	Phe	Ser	
	50					55					60					
Ile	Ser	Phe	Ser	Glu	Asp	Arg	Ile	Gly	Gly	Lys	Leu	Arg	Ala	Leu	Gly	
65					70					75					80	
Tyr	Gln	Pro	Asn	Glu	Ile	Gly	Phe	Ser	Lys	Asp	Ile	Asn	Ser	Asn	Asn	
			85						90					95		
Gln	Asn	Val	Asn	Asp	Ile	Glu	Val	Ile	Tyr	Met	Lys	Lys	Glu			
		100						105					110			

<210> 19  
 <211> 350  
 <212> DNA  
 <213> Streptococcus agalactiae

<400> 19

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gtcaattaca taaaacaaca tgttgagtta acaaatggta atcaaataaa aaaaattgag	180
tttatcgact ttcaaaaaaa tgagatgaca ggtacatggg gaattttctac taaaattaat	240
gaacaatttt cgattagttt ttctgaagat agaattgggtg gttaaacttag agcattagga	300
tatcaaccga atgaaatagg tttttcaaag gacatcaata gtaataatca	350

<210> 20  
 <211> 117  
 <212> PRT  
 <213> Streptococcus agalactiae

<400> 20

Met Lys Lys Arg Ile Trp Tyr Leu Ile Ile Ile Ile Thr Val Ile Leu  
1 5 10 15

Gly Gly Leu Ala Met Lys Asn Leu Phe Ala Thr Thr Glu Ala Ser Ser  
20 25 30

Arg Lys Gln Glu Gln Asp Arg Ile Val Asn Tyr Ile Lys Gln His Val  
35 40 45

Glu Leu Thr Asn Gly Asn Gln Ile Lys Lys Ile Glu Phe Ile Asp Phe  
50 55 60

Gln Lys Asn Glu Met Thr Gly Thr Trp Gly Ile Ser Thr Lys Ile Asn  
65 70 75 80

Glu Gln Phe Ser Ile Ser Phe Ser Glu Asp Arg Ile Gly Gly Lys Leu  
85 90 95

Arg Ala Leu Gly Tyr Gln Pro Asn Glu Ile Gly Phe Ser Lys Asp Ile  
100 105 110

Asn Ser Asn Asn Gln  
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<210> 21

<211> 1350

<212> DNA

<213> Streptococcus agalactiae

<400> 21

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acttgtgtta acttaggttg tgtacctaa aaaatcatgt ggtatggcgc acaagtttct 180  
gagacactcc ataagtatag ttcagggttat ggttttgaag ccaataatct tagttttgat 240  
tttactactc taaaagctaa tcgcatgct tacgtgcagc ggtctagaca gtcgtatgcc 300  
gctaattttg agcgtaatgg ggtcgaaaag attgatggat ttgctcgttt tattgataac 360  
catactattg aagtgaatgg tcagcaatat aaagctcctc acattactat tgcaacaggt 420  
ggacaccctc ttaccctga tattattgga agtgaacttg gtgagacttc tgatgatttt 480  
tttggatggg agaccttacc aaattctata ttgattgttg gggcgggcta tatcgcgcca 540  
gaacttgctg gagggttaa tgaattaggc gttgaaaccc atcttgcatt tagaaaagac 600  
catattctac gcggatttga tgacatggta acaagtgagg ttatggctga aatggagaaa 660  
tcaggatatct ctttacatgc taaccatgta cctaaatctc ttaaacgcga tgaagggtggc 720  
aagttgattt ttgaagctga aaatgggaaa acgcttgctg ttgacgtgt aatatgggct 780

atcggccgtg gaccaaattgt agacatggga cttgaaaata ccgatattgt tttaaattgat 840  
 aaagattata tcaaaacaga tgaatttgag aatacttctg tagatggcgt gtagtctatt 900  
 ggagatgtta atgggaaaat tgccttgaca ccggtagcaa ttgcagcagg tcgtcgctta 960  
 tcagaaagac tttttaatca taaagataac gaaaaattag attaccataa tgtaccttca 1020  
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 caatttgga aagataatat caaagtctat acatcaactt ttacctctat gtatacggct 1140  
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 gttattgggc ttcattggtgt tggttatggt attgatgaaa tgattcaagg tttttcagtt 1260  
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 ggatctgagg aatttggtac aatgcgctaa 1350

<210> 22  
 <211> 449  
 <212> PRT  
 <213> Streptococcus agalactiae

<400> 22

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Ile	Glu	Gly	Gly	Gln	Val	Gly	Gly	Thr	Cys	Val	Asn	Leu	Gly	Cys	Val	35	40	45	
Pro	Lys	Lys	Ile	Met	Trp	Tyr	Gly	Ala	Gln	Val	Ser	Glu	Thr	Leu	His	50	55	60	
Lys	Tyr	Ser	Ser	Gly	Tyr	Gly	Phe	Glu	Ala	Asn	Asn	Leu	Ser	Phe	Asp	65	70	75	80
Phe	Thr	Thr	Leu	Lys	Ala	Asn	Arg	Asp	Ala	Tyr	Val	Gln	Arg	Ser	Arg	85	90	95	
Gln	Ser	Tyr	Ala	Ala	Asn	Phe	Glu	Arg	Asn	Gly	Val	Glu	Lys	Ile	Asp	100	105	110	
Gly	Phe	Ala	Arg	Phe	Ile	Asp	Asn	His	Thr	Ile	Glu	Val	Asn	Gly	Gln	115	120	125	
Gln	Tyr	Lys	Ala	Pro	His	Ile	Thr	Ile	Ala	Thr	Gly	Gly	His	Pro	Leu	130	135	140	
Tyr	Pro	Asp	Ile	Ile	Gly	Ser	Glu	Leu	Gly	Glu	Thr	Ser	Asp	Asp	Phe				

145					150					155				160	
Phe	Gly	Trp	Glu	Thr	Leu	Pro	Asn	Ser	Ile	Leu	Ile	Val	Gly	Ala	Gly
				165					170					175	
Tyr	Ile	Ala	Ala	Glu	Leu	Ala	Gly	Val	Val	Asn	Glu	Leu	Gly	Val	Glu
			180					185					190		
Thr	His	Leu	Ala	Phe	Arg	Lys	Asp	His	Ile	Leu	Arg	Gly	Phe	Asp	Asp
		195					200					205			
Met	Val	Thr	Ser	Glu	Val	Met	Ala	Glu	Met	Glu	Lys	Ser	Gly	Ile	Ser
	210					215					220				
Leu	His	Ala	Asn	His	Val	Pro	Lys	Ser	Leu	Lys	Arg	Asp	Glu	Gly	Gly
225					230					235					240
Lys	Leu	Ile	Phe	Glu	Ala	Glu	Asn	Gly	Lys	Thr	Leu	Val	Val	Asp	Arg
				245					250					255	
Val	Ile	Trp	Ala	Ile	Gly	Arg	Gly	Pro	Asn	Val	Asp	Met	Gly	Leu	Glu
			260					265					270		
Asn	Thr	Asp	Ile	Val	Leu	Asn	Asp	Lys	Asp	Tyr	Ile	Lys	Thr	Asp	Glu
		275					280					285			
Phe	Glu	Asn	Thr	Ser	Val	Asp	Gly	Val	Tyr	Ala	Ile	Gly	Asp	Val	Asn
	290					295					300				
Gly	Lys	Ile	Ala	Leu	Thr	Pro	Val	Ala	Ile	Ala	Ala	Gly	Arg	Arg	Leu
305					310				315						320
Ser	Glu	Arg	Leu	Phe	Asn	His	Lys	Asp	Asn	Glu	Lys	Leu	Asp	Tyr	His
				325					330					335	
Asn	Val	Pro	Ser	Val	Ile	Phe	Thr	His	Pro	Val	Ile	Gly	Thr	Val	Gly
			340					345					350		
Leu	Ser	Glu	Ala	Ala	Ala	Ile	Glu	Gln	Phe	Gly	Lys	Asp	Asn	Ile	Lys
		355					360					365			
Val	Tyr	Thr	Ser	Thr	Phe	Thr	Ser	Met	Tyr	Thr	Ala	Val	Thr	Ser	Asn
	370					375					380				
Arg	Gln	Ala	Val	Lys	Met	Lys	Leu	Ile	Thr	Leu	Gly	Lys	Glu	Glu	Lys
385					390					395					400
Val	Ile	Gly	Leu	His	Gly	Val	Gly	Tyr	Gly	Ile	Asp	Glu	Met	Ile	Gln
				405					410					415	
Gly	Phe	Ser	Val	Ala	Ile	Lys	Met	Gly	Ala	Thr	Lys	Ala	Asp	Phe	Asp
			420					425					430		
Asp	Thr	Val	Ala	Ile	His	Pro	Thr	Gly	Ser	Glu	Glu	Phe	Val	Thr	Met
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Arg

<210> 23  
<211> 3168  
<212> DNA  
<213> Streptococcus agalactiae

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gagaattcta ctgttgatga aacagttagt gatttatttt ctgatggaaa tagtaataac 240  
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acatcacact tggttttacc aagtcatgca gcagatggaa ctcaattgac acaagtagct 540  
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atatttaatg cttaccagtt gactaagctt actattccaa atggttataa gtctattggt 720  
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ccaggagatg aacattacaa caatcagggt gtattgcgca caaggacagg ccaaaatcca 1140  
catcaacttg cgactgagaa tacttacgtc aatccggaca aatcattgtg gcgtgcaaca 1200  
cctgatatgg attataccaa atgggttagag gaagatttta cctatcaaaa aaatagtgtt 1260  
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gatttagaag agattaaaga gggagccttt atgaataatc gtattggaac tctagacttg	1560
aaagacaaac ttatcaaaat aggtgatgct gctttccata ttaatcatat ttatgccatt	1620
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aaactggaaa gtgtaaatct ctctgagcaa aaacaattaa agacaattga ggtccaagct	1800
ttttcggata atgcccttag tgaagtagtc ttaccgcca atttacagac tattcgtgaa	1860
gaggctttca aaaggaatca tttgaaagaa gtgaagggtt catctacatt atctcagatt	1920
acttttaatg cttttgatca aaatgatggg gacaaacgct ttggtaagaa agtggttggt	1980
aggacacata ataattctca tatgtagca gatggtgagc gttttatcat tgatccagat	2040
aagctatctt ctacaatggg agaccttgaa aaggttttaa aaataatcga aggtttagat	2100
tactctacat tacgtcagac tactcaaact cagtttagag aaatgactac tgcaggtaaa	2160
gcgttggtat caaaatctaa cctccgacaa ggagaaaaac aaaaattcct tcaagaagca	2220
caatttttcc ttggtcgcgt tgatttggat aaagccatag cttaaagctga gaaggcttta	2280
gtgaccaaga aggcaacaaa gaatgggtcat ttgcttgaga ggagtattaa caaagcggta	2340
ttagcttata ataatagtgc tattaaaaaa gctaattgta agcgcttgga aaaagagtta	2400
gacttgctga cagatttagt cgagggaaaa ggaccattag cgcaagctac aatgggtacaa	2460
ggagtttatt tattaaagac gcctttacca ttgccagaat attatatcgg attgaacgtt	2520
tattttgaca agtctggaaa attgatttat gcacttgata tgagtgatac tattggcgag	2580
ggacaaaaag atgcatatgg taatcctata ttaaagtgtg acgaggataa tgaaggttat	2640
cataccttgg cagttgccac tttagctgat tatgaaggtc tttatattaa agatatttta	2700
aatagttccc ttgataagat taaagcaata cgccagattc ctttggcaaa atatcataga	2760
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acacctaagg ggtacctaaa tgaagtccca aattatcgta aaaaacaaat ggagaaaaat	2880
ttaaaaccag ttgattataa aacgccgatt ttttaataagg ctttacctaa tgaaaaggta	2940
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caaacaagtt ctaaaaataa ttttatatac gagattctag gatacgttag tttatgtttg	3120
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<210> 24  
 <211> 1055  
 <212> PRT  
 <213> Streptococcus agalactiae

<400> 24

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			20					25					30					
Ser	Val	Lys	Gln	Glu	Gln	Thr	Gln	Ser	Ala	Ser	Glu	Asp	Asp	Trp	Phe			
		35					40					45						
Glu	Glu	Asp	Asn	Glu	Arg	Lys	Thr	Asn	Val	Ser	Lys	Glu	Asn	Ser	Thr			
	50					55					60							
Val	Asp	Glu	Thr	Val	Ser	Asp	Leu	Phe	Ser	Asp	Gly	Asn	Ser	Asn	Asn			
65					70					75					80			
Ser	Ser	Ser	Lys	Thr	Glu	Ser	Val	Val	Ser	Asp	Pro	Lys	Gln	Val	Pro			
			85						90					95				
Lys	Ala	Lys	Pro	Glu	Val	Thr	Gln	Glu	Ala	Ser	Asn	Ser	Ser	Asn	Asp			
			100					105						110				
Ala	Ser	Lys	Val	Glu	Val	Pro	Lys	Gln	Asp	Thr	Ala	Ser	Lys	Lys	Glu			
		115					120					125						
Thr	Leu	Glu	Thr	Ser	Thr	Trp	Glu	Ala	Lys	Asp	Phe	Val	Thr	Arg	Gly			
	130					135					140							
Asp	Thr	Leu	Val	Gly	Phe	Ser	Lys	Ser	Gly	Ile	Asn	Lys	Leu	Ser	Gln			
145				150					155						160			
Thr	Ser	His	Leu	Val	Leu	Pro	Ser	His	Ala	Ala	Asp	Gly	Thr	Gln	Leu			
			165						170					175				
Thr	Gln	Val	Ala	Ser	Phe	Ala	Phe	Thr	Pro	Asp	Lys	Lys	Thr	Ala	Ile			
		180						185					190					
Ala	Glu	Tyr	Thr	Ser	Arg	Leu	Gly	Glu	Asn	Gly	Lys	Pro	Ser	Arg	Leu			
		195					200					205						
Asp	Ile	Asp	Gln	Lys	Glu	Ile	Ile	Asp	Glu	Gly	Glu	Ile	Phe	Asn	Ala			
	210					215					220							
Tyr	Gln	Leu	Thr	Lys	Leu	Thr	Ile	Pro	Asn	Gly	Tyr	Lys	Ser	Ile	Gly			
225				230						235					240			
Gln	Asp	Ala	Phe	Val	Asp	Asn	Lys	Asn	Ile	Ala	Glu	Val	Asn	Leu	Pro			
			245						250					255				
Glu	Ser	Leu	Glu	Thr	Ile	Ser	Asp	Tyr	Ala	Phe	Ala	His	Met	Ser	Leu			

260					265					270					
Lys	Gln	Val	Lys	Leu	Pro	Asp	Asn	Leu	Lys	Val	Ile	Gly	Glu	Leu	Ala
		275					280					285			
Phe	Phe	Asp	Asn	Gln	Ile	Gly	Gly	Lys	Leu	Tyr	Leu	Pro	Arg	His	Leu
	290					295					300				
Ile	Lys	Leu	Ala	Glu	Arg	Ala	Phe	Lys	Ser	Asn	Arg	Ile	Gln	Thr	Val
305					310					315					320
Glu	Phe	Leu	Gly	Ser	Lys	Leu	Lys	Val	Ile	Gly	Glu	Ala	Ser	Phe	Gln
				325					330					335	
Asp	Asn	Asn	Leu	Arg	Asn	Val	Met	Leu	Pro	Asp	Gly	Leu	Glu	Lys	Ile
			340					345					350		
Glu	Ser	Glu	Ala	Phe	Thr	Gly	Asn	Pro	Gly	Asp	Glu	His	Tyr	Asn	Asn
		355					360					365			
Gln	Val	Val	Leu	Arg	Thr	Arg	Thr	Gly	Gln	Asn	Pro	His	Gln	Leu	Ala
	370					375					380				
Thr	Glu	Asn	Thr	Tyr	Val	Asn	Pro	Asp	Lys	Ser	Leu	Trp	Arg	Ala	Thr
385					390					395					400
Pro	Asp	Met	Asp	Tyr	Thr	Lys	Trp	Leu	Glu	Glu	Asp	Phe	Thr	Tyr	Gln
				405					410					415	
Lys	Asn	Ser	Val	Thr	Gly	Phe	Ser	Asn	Lys	Gly	Leu	Gln	Lys	Val	Arg
			420					425					430		
Arg	Asn	Lys	Asn	Leu	Glu	Ile	Pro	Lys	Gln	His	Asn	Gly	Ile	Thr	Ile
		435					440					445			
Thr	Glu	Ile	Gly	Asp	Asn	Ala	Phe	Arg	Asn	Val	Asp	Phe	Gln	Ser	Lys
	450					455					460				
Thr	Leu	Arg	Lys	Tyr	Asp	Leu	Glu	Glu	Ile	Lys	Leu	Pro	Ser	Thr	Ile
465					470					475					480
Arg	Lys	Ile	Gly	Ala	Phe	Ala	Phe	Gln	Ser	Asn	Asn	Leu	Lys	Ser	Phe
				485					490					495	
Glu	Ala	Ser	Glu	Asp	Leu	Glu	Glu	Ile	Lys	Glu	Gly	Ala	Phe	Met	Asn
			500					505					510		
Asn	Arg	Ile	Gly	Thr	Leu	Asp	Leu	Lys	Asp	Lys	Leu	Ile	Lys	Ile	Gly
		515					520					525			
Asp	Ala	Ala	Phe	His	Ile	Asn	His	Ile	Tyr	Ala	Ile	Val	Leu	Pro	Glu
	530					535					540				
Ser	Val	Gln	Glu	Ile	Gly	Arg	Ser	Ala	Phe	Arg	Gln	Asn	Gly	Ala	Leu
545					550					555					560
His	Leu	Met	Phe	Ile	Gly	Asn	Lys	Val	Lys	Thr	Ile	Gly	Glu	Met	Ala

565						570						575			
Phe	Leu	Ser	Asn	Lys	Leu	Glu	Ser	Val	Asn	Leu	Ser	Glu	Gln	Lys	Gln
			580					585					590		
Leu	Lys	Thr	Ile	Glu	Val	Gln	Ala	Phe	Ser	Asp	Asn	Ala	Leu	Ser	Glu
		595					600					605			
Val	Val	Leu	Pro	Pro	Asn	Leu	Gln	Thr	Ile	Arg	Glu	Glu	Ala	Phe	Lys
	610					615					620				
Arg	Asn	His	Leu	Lys	Glu	Val	Lys	Gly	Ser	Ser	Thr	Leu	Ser	Gln	Ile
625					630					635					640
Thr	Phe	Asn	Ala	Phe	Asp	Gln	Asn	Asp	Gly	Asp	Lys	Arg	Phe	Gly	Lys
				645					650					655	
Lys	Val	Val	Val	Arg	Thr	His	Asn	Asn	Ser	His	Met	Leu	Ala	Asp	Gly
			660					665					670		
Glu	Arg	Phe	Ile	Ile	Asp	Pro	Asp	Lys	Leu	Ser	Ser	Thr	Met	Val	Asp
		675					680					685			
Leu	Glu	Lys	Val	Leu	Lys	Ile	Ile	Glu	Gly	Leu	Asp	Tyr	Ser	Thr	Leu
	690					695					700				
Arg	Gln	Thr	Thr	Gln	Thr	Gln	Phe	Arg	Glu	Met	Thr	Thr	Ala	Gly	Lys
705					710					715					720
Ala	Leu	Leu	Ser	Lys	Ser	Asn	Leu	Arg	Gln	Gly	Glu	Lys	Gln	Lys	Phe
				725					730					735	
Leu	Gln	Glu	Ala	Gln	Phe	Phe	Leu	Gly	Arg	Val	Asp	Leu	Asp	Lys	Ala
			740					745					750		
Ile	Ala	Lys	Ala	Glu	Lys	Ala	Leu	Val	Thr	Lys	Lys	Ala	Thr	Lys	Asn
		755					760					765			
Gly	His	Leu	Leu	Glu	Arg	Ser	Ile	Asn	Lys	Ala	Val	Leu	Ala	Tyr	Asn
	770					775					780				
Asn	Ser	Ala	Ile	Lys	Lys	Ala	Asn	Val	Lys	Arg	Leu	Glu	Lys	Glu	Leu
785					790					795					800
Asp	Leu	Leu	Thr	Asp	Leu	Val	Glu	Gly	Lys	Gly	Pro	Leu	Ala	Gln	Ala
				805					810					815	
Thr	Met	Val	Gln	Gly	Val	Tyr	Leu	Leu	Lys	Thr	Pro	Leu	Pro	Leu	Pro
			820					825					830		
Glu	Tyr	Tyr	Ile	Gly	Leu	Asn	Val	Tyr	Phe	Asp	Lys	Ser	Gly	Lys	Leu
		835					840					845			
Ile	Tyr	Ala	Leu	Asp	Met	Ser	Asp	Thr	Ile	Gly	Glu	Gly	Gln	Lys	Asp
	850					855					860				
Ala	Tyr	Gly	Asn	Pro	Ile	Leu	Asn	Val	Asp	Glu	Asp	Asn	Glu	Gly	Tyr

865		870		875		880
His Thr Leu Ala Val	Ala Thr Leu Ala Asp Tyr Glu Gly Leu Tyr Ile					
	885		890		895	
Lys Asp Ile Leu Asn Ser Ser Leu Asp Lys Ile Lys Ala Ile Arg Gln						
	900		905		910	
Ile Pro Leu Ala Lys Tyr His Arg Leu Gly Ile Phe Gln Ala Ile Arg						
	915		920		925	
Asn Ala Ala Ala Glu Ala Asp Arg Leu Leu Pro Lys Thr Pro Lys Gly						
	930		935		940	
Tyr Leu Asn Glu Val Pro Asn Tyr Arg Lys Lys Gln Met Glu Lys Asn						
	945		950		955	960
Leu Lys Pro Val Asp Tyr Lys Thr Pro Ile Phe Asn Lys Ala Leu Pro						
	965		970		975	
Asn Glu Lys Val Asp Gly Asp Arg Ala Ala Lys Gly His Asn Ile Asn						
	980		985		990	
Ala Glu Thr Asn Asn Ser Val Ala Val Thr Pro Ile Arg Ser Glu Gln						
	995		1000		1005	
Gln Leu His Lys Ser Gln Ser Asp Val Asn Leu Pro Gln Thr Ser						
	1010		1015		1020	
Ser Lys Asn Asn Phe Ile Tyr Glu Ile Leu Gly Tyr Val Ser Leu						
	1025		1030		1035	
Cys Leu Leu Phe Leu Val Thr Ala Gly Lys Lys Gly Lys Arg Ala						
	1040		1045		1050	
Arg Lys						
	1055					

<210> 25  
 <211> 153  
 <212> DNA  
 <213> Streptococcus agalactiae

<400> 25  
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 acatgtcggc acaagctgaa gatttcttta cagtctgtac acaataaaga gacgggtaag 120  
 agcgctttta atgacaaaga acgactagca att 153

<210> 26  
 <211> 51  
 <212> PRT  
 <213> Streptococcus agalactiae

<400> 26

Ala	Gly	Tyr	Ile	Met	His	Lys	His	Glu	Ala	Ile	Val	Ser	Cys	Trp	Gly
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Gln	Pro	Arg	Lys	Thr	Cys	Arg	His	Lys	Leu	Lys	Ile	Ser	Leu	Gln	Ser
			20					25					30		
Val	His	Asn	Lys	Glu	Thr	Gly	Lys	Ser	Ala	Phe	Asn	Asp	Lys	Glu	Arg
		35					40					45			
Leu	Ala	Ile													
	50														

<210> 27  
 <211> 1095  
 <212> DNA  
 <213> Streptococcus agalactiae

<400> 27  
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 gagaagaaag caaataatgt cagtccgaga gaaaatctct acagggctgt caatgataat 180  
 tggctagcca atacaaaact caaacaaggg cagactagtgt ttaatagttt ttcagaaatt 240  
 gaggataaat taaagcaact gttagtgtct gatatggcta aaatggcctc aggaaagatt 300  
 gaaacaacca atgatgaaca gaaaaaaatg gttgcatact ataaacaagg tatggacttt 360  
 aaaacaagag ataaaaatgg tctcaaacct ctaaaaccag ttttacaaaa acttgaagca 420  
 gtctcttcaa tgaaagactt tcaaagtttg gcccatgatt ttgtgatgag tggttttgtt 480  
 ttaccatttg gtttgactgt ggaaaccaat gctcgagata atagccaaaa gcaattggtg 540  
 cttcgtcaag caccgcgatt acttgaatca cctgaccaat ataagaaggg caataaagaa 600  
 ggtgaggcta aattatcagc ttaccgtact tcagcaatgg ctttgcttaa acaagctgga 660  
 aaaagtaaca ttgaagatag aaaactagtt aaacaagcta tagcatttga tagactctta 720  
 tcagaaaaaa cgcaagttga tcaaagtaaa atcacagctg aaagtgagac agctgcgggg 780  
 cgatataacc ctgaaagtat ggaaacggtt cacaattacg ccaaggaatt tgactttaaa 840  
 gaattgattg aaaaactagt tgggccaacg aataaggcag tcaatgtaga agataaaact 900  
 tatttttaaac aggttaatga tgttataaat agtaaacaat tagccaatat gaaagcatgg 960  
 atgatgattt ctatgctagt tgatcaatca gattttctag gagaacaaaa tcgtcaagca 1020  
 gcgagtgctt ttaagaatgt tgcgtctggg ttgactcaga ttgaatcgaa agaaaaaatg 1080  
 cttacacca attag 1095

<210> 28  
 <211> 364  
 <212> PRT  
 <213> Streptococcus agalactiae

<400> 28

Met	Ser	Phe	Met	Gln	Arg	Lys	Ser	Tyr	Leu	Lys	Ser	Met	Ser	Val	Leu
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Thr	Leu	Thr	Ala	Cys	Leu	Ile	Ser	Gly	Tyr	Val	Val	Lys	Asp	Ile	Ala
			20					25					30		
Met	Leu	His	Ala	Val	Ser	Ala	Ser	Glu	Lys	Lys	Ala	Asn	Asn	Val	Ser
		35					40					45			
Pro	Arg	Glu	Asn	Leu	Tyr	Arg	Ala	Val	Asn	Asp	Asn	Trp	Leu	Ala	Asn
	50					55					60				
Thr	Lys	Leu	Lys	Gln	Gly	Gln	Thr	Ser	Val	Asn	Ser	Phe	Ser	Glu	Ile
65				70						75					80
Glu	Asp	Lys	Leu	Lys	Gln	Leu	Leu	Val	Ser	Asp	Met	Ala	Lys	Met	Ala
			85					90						95	
Ser	Gly	Lys	Ile	Glu	Thr	Thr	Asn	Asp	Glu	Gln	Lys	Lys	Met	Val	Ala
			100					105					110		
Tyr	Tyr	Lys	Gln	Gly	Met	Asp	Phe	Lys	Thr	Arg	Asp	Lys	Asn	Gly	Leu
		115					120					125			
Lys	Pro	Leu	Lys	Pro	Val	Leu	Gln	Lys	Leu	Glu	Ala	Val	Ser	Ser	Met
	130					135					140				
Lys	Asp	Phe	Gln	Ser	Leu	Ala	His	Asp	Phe	Val	Met	Ser	Gly	Phe	Val
145					150					155					160
Leu	Pro	Phe	Gly	Leu	Thr	Val	Glu	Thr	Asn	Ala	Arg	Asp	Asn	Ser	Gln
			165						170					175	
Lys	Gln	Leu	Val	Leu	Arg	Gln	Ala	Pro	Ala	Leu	Leu	Glu	Ser	Pro	Asp
		180						185					190		
Gln	Tyr	Lys	Lys	Gly	Asn	Lys	Glu	Gly	Glu	Ala	Lys	Leu	Ser	Ala	Tyr
		195					200					205			
Arg	Thr	Ser	Ala	Met	Ala	Leu	Leu	Lys	Gln	Ala	Gly	Lys	Ser	Asn	Ile
	210					215					220				
Glu	Asp	Arg	Lys	Leu	Val	Lys	Gln	Ala	Ile	Ala	Phe	Asp	Arg	Leu	Leu
225					230					235					240
Ser	Glu	Lys	Thr	Gln	Val	Asp	Gln	Ser	Lys	Ile	Thr	Ala	Glu	Ser	Glu
			245						250					255	
Thr	Ala	Ala	Gly	Arg	Tyr	Asn	Pro	Glu	Ser	Met	Glu	Thr	Val	His	Asn

260	265	270
Tyr Ala Lys Glu Phe Asp Phe Lys Glu Leu Ile Glu Lys Leu Val Gly		
275	280	285
Pro Thr Asn Lys Ala Val Asn Val Glu Asp Lys Thr Tyr Phe Lys Gln		
290	295	300
Val Asn Asp Val Ile Asn Ser Lys Gln Leu Ala Asn Met Lys Ala Trp		
305	310	315 320
Met Met Ile Ser Met Leu Val Asp Gln Ser Asp Phe Leu Gly Glu Gln		
	325 330	335
Asn Arg Gln Ala Ala Ser Ala Phe Lys Asn Val Ala Ser Gly Leu Thr		
	340 345	350
Gln Ile Glu Ser Lys Glu Lys Met Leu Thr Pro Asn		
355	360	

<210> 29  
 <211> 174  
 <212> DNA  
 <213> Streptococcus agalactiae

<400> 29  
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 cttagatata aagaaccaga gagtgaacat gacaagcgac ctacttttta tttggtagta 120  
 cttatacttg ttactgtagc agttatattg tcgttattta aatatttttt atag 174

<210> 30  
 <211> 57  
 <212> PRT  
 <213> Streptococcus agalactiae

<400> 30

Met Glu Met Pro Lys Arg Asn Glu Leu Leu Asn Lys Glu Ile Lys Met
1 5 10 15
Ser Ile Asp Lys Leu Arg Tyr Lys Glu Pro Glu Ser Glu His Asp Lys
20 25 30
Arg Pro Thr Phe Tyr Leu Val Val Leu Ile Leu Val Thr Val Ala Val
35 40 45
Ile Leu Ser Leu Phe Lys Tyr Phe Leu
50 55

<210> 31  
 <211> 140  
 <212> DNA  
 <213> Streptococcus agalactiae

<400> 31  
atgcaggtat ttttaaatat tgtcaataaa ttctttgatc cagttattca tatgggttcg 60  
ggagttgtga tgctaattgt catgacaggt ttagccatga tatttggagt gaagttttct 120  
aaagcacttg aaggtggtat 140

<210> 32  
<211> 46  
<212> PRT  
<213> Streptococcus agalactiae

<400> 32  
Met Gln Val Phe Leu Asn Ile Val Asn Lys Phe Phe Asp Pro Val Ile  
1 5 10 15  
His Met Gly Ser Gly Val Val Met Leu Ile Val Met Thr Gly Leu Ala  
20 25 30  
Met Ile Phe Gly Val Lys Phe Ser Lys Ala Leu Glu Gly Gly  
35 40 45

<210> 33  
<211> 110  
<212> DNA  
<213> Streptococcus agalactiae

<400> 33  
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acagtgcctt ttatctttcc attttattgg attatgacag gagcttttaa 110

<210> 34  
<211> 36  
<212> PRT  
<213> Streptococcus agalactiae

<400> 34  
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Leu Cys Leu Leu Thr Val Leu Phe Ile Phe Pro Phe Tyr Trp Ile Met  
20 25 30  
Thr Gly Ala Phe  
35

<210> 35  
<211> 744  
<212> DNA  
<213> Streptococcus agalactiae

<400> 35

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caaggtcaac cgattgtttt tttacatggc aatagcttaa gtagtcgcta ttttgataag      120
caaatagcat atttttctaa gtattaccaa gttattgtta tggatagtag agggcatggc      180
aaaagtcatg caaagctaaa taccattagt ttcaggcaaa tagcagttga cttaaaggat      240
atcttagttc atttagagat tgataaagtt atattggtag gccatagcga tggtgctaatt      300
ttagcttttag tttttcaaac gatgtttcca gatatggtta gagggctttt gcttaattca      360
gggaacctga ctattcatgg tcagcgaagg tgggatattc ttttagtaag gattgcctat      420
aaattccttc actatttagg gaaactcttt ccgtatatga ggcaaaaagc tcaagttatt      480
tcgcttatgt tggaggattt gaagattagt ccagctgatt tacagcatgt gtcaactcct      540
gtaatggttt tgggtggaaa taaggacata attaagttaa atcattctaa gaaacttgct      600
tcttattttc caagggggga gttttattct ttagttggct ttgggcatca cattattaag      660
caagattccc atgtttttta tattattgca aaaaagttta tcaacgatac gttgaaagga      720
gaaattggtg aaaaagctaa ttga                                              744

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<210> 36
<211> 247
<212> PRT
<213> Streptococcus agalactiae

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<400> 36

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Arg Val Val Gly Gln Gly Gln Pro Ile Val Phe Leu His Gly Asn Ser
          20          25          30

Leu Ser Ser Arg Tyr Phe Asp Lys Gln Ile Ala Tyr Phe Ser Lys Tyr
          35          40          45

Tyr Gln Val Ile Val Met Asp Ser Arg Gly His Gly Lys Ser His Ala
          50          55          60

Lys Leu Asn Thr Ile Ser Phe Arg Gln Ile Ala Val Asp Leu Lys Asp
65          70          75          80

Ile Leu Val His Leu Glu Ile Asp Lys Val Ile Leu Val Gly His Ser
          85          90          95

Asp Gly Ala Asn Leu Ala Leu Val Phe Gln Thr Met Phe Pro Asp Met
          100          105          110

Val Arg Gly Leu Leu Leu Asn Ser Gly Asn Leu Thr Ile His Gly Gln
          115          120          125

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Arg Trp Trp Asp Ile Leu Leu Val Arg Ile Ala Tyr Lys Phe Leu His  
 130 135 140  
 Tyr Leu Gly Lys Leu Phe Pro Tyr Met Arg Gln Lys Ala Gln Val Ile  
 145 150 155 160  
 Ser Leu Met Leu Glu Asp Leu Lys Ile Ser Pro Ala Asp Leu Gln His  
 165 170 175  
 Val Ser Thr Pro Val Met Val Leu Val Gly Asn Lys Asp Ile Ile Lys  
 180 185 190  
 Leu Asn His Ser Lys Lys Leu Ala Ser Tyr Phe Pro Arg Gly Glu Phe  
 195 200 205  
 Tyr Ser Leu Val Gly Phe Gly His His Ile Ile Lys Gln Asp Ser His  
 210 215 220  
 Val Phe Asn Ile Ile Ala Lys Lys Phe Ile Asn Asp Thr Leu Lys Gly  
 225 230 235 240  
 Glu Ile Val Glu Lys Ala Asn  
 245

<210> 37  
 <211> 405  
 <212> DNA  
 <213> Streptococcus agalactiae

<400> 37  
 atggtagcaa aagagttagg taaaaatagc ttactatcc caactatttg ttctaattgc 60  
 tccgcaggta ctgccattgc agttgtatat aatgatgacc attctttctt aagatacggc 120  
 tatcccgagt ctccacttca tattttttatc aatacacgga tcattgcaca ggcaccaagc 180  
 aaatattttt gggctggtat tggggacggg atttcaaaag cccctgaagt agaacgtgct 240  
 accttagagg ctaagaccaa taaactacca catactgcag tgtaggaca agcagtcgct 300  
 ctgtcttcaa aggaagcttt ttatcaattt ggtgaacaag gtctaaaaga cgttgaagct 360  
 aatttagctt cgcgtgcagt tgaagaaatt gcgcttgata tctta 405

<210> 38  
 <211> 135  
 <212> PRT  
 <213> Streptococcus agalactiae

<400> 38

Met Val Ala Lys Glu Leu Gly Lys Asn Ser Phe Thr Ile Pro Thr Ile  
 1 5 10 15  
 Cys Ser Asn Cys Ser Ala Gly Thr Ala Ile Ala Val Val Tyr Asn Asp

20	25	30
Asp His Ser Phe Leu Arg Tyr Gly Tyr Pro Glu Ser Pro Leu His Ile		
35	40	45
Phe Ile Asn Thr Arg Ile Ile Ala Gln Ala Pro Ser Lys Tyr Phe Trp		
50	55	60
Ala Gly Ile Gly Asp Gly Ile Ser Lys Ala Pro Glu Val Glu Arg Ala		
65	70	75
Thr Leu Glu Ala Lys Thr Asn Lys Leu Pro His Thr Ala Val Leu Gly		
85	90	95
Gln Ala Val Ala Leu Ser Ser Lys Glu Ala Phe Tyr Gln Phe Gly Glu		
100	105	110
Gln Gly Leu Lys Asp Val Glu Ala Asn Leu Ala Ser Arg Ala Val Glu		
115	120	125
Glu Ile Ala Leu Asp Ile Leu		
130	135	

<210> 39  
 <211> 921  
 <212> DNA  
 <213> Streptococcus agalactiae

<400> 39

ttgagggaaa cttactggaa aatttcaagc gattgcgata aaataaatct tgcagagttt	60
tctagagaaa ggaggtcaga tttattggag tggcaagatc tagcgcagtt acctgtatct	120
atttttaaag actatgttac agatgctcaa gacgcggaaa aaccttttat atggacagaa	180
gtatttttaa gggagattaa tcgctcaaat caagaaatta ttttgcatat ttggccgatg	240
actaagacag tcattctggg gatgtagat cgagaattac cacatttaga attagctaaa	300
aaagaaatca tcagtcgtgg ttatgaacca gttgttcgga attttggagg tctcgcagtt	360
gtagctgatg aaggaatttt aaatttttca ttggttattc cagatgtttt tgagagaaaa	420
ttgtctatct cagatgggta tcttataatg gtcgatttta ttagaagtat attttcggat	480
ttttatcaac ctattgagca ctttgaagta gagacctcct attgtcctgg taagtttgat	540
cttagtataa atggcaaaaa atttgctggc ttggctcagc gccgtataaa gaatggtatt	600
gcggtatcaa ttaccttag cgtttgtggc gatcaaaaag ggcggagtca aatgatttca	660
gatttttata agattggtct aggtgatacg ggtagtccaa ttgcttatcc aaatgtagat	720
cctgaaatta tggctaactc atctgatcta ttagattgtc ctatgacagt agaagatgtt	780
attgatcgta tgttgattag ccttaaacaa gtaggtttta atgatcgttt actgatgatt	840

agacccgatt tagttgcaga gtttgataga tttcaggcta agtctatggc taataagggg 900

atggtgagca gagatgaata a 921

<210> 40  
<211> 306  
<212> PRT  
<213> Streptococcus agalactiae

<400> 40

Met Arg Glu Thr Tyr Trp Lys Ile Ser Ser Asp Cys Asp Lys Ile Asn  
1 5 10 15

Leu Ala Glu Phe Ser Arg Glu Arg Arg Ser Asp Leu Leu Glu Trp Gln  
20 25 30

Asp Leu Ala Gln Leu Pro Val Ser Ile Phe Lys Asp Tyr Val Thr Asp  
35 40 45

Ala Gln Asp Ala Glu Lys Pro Phe Ile Trp Thr Glu Val Phe Leu Arg  
50 55 60

Glu Ile Asn Arg Ser Asn Gln Glu Ile Ile Leu His Ile Trp Pro Met  
65 70 75 80

Thr Lys Thr Val Ile Leu Gly Met Leu Asp Arg Glu Leu Pro His Leu  
85 90 95

Glu Leu Ala Lys Lys Glu Ile Ile Ser Arg Gly Tyr Glu Pro Val Val  
100 105 110

Arg Asn Phe Gly Gly Leu Ala Val Val Ala Asp Glu Gly Ile Leu Asn  
115 120 125

Phe Ser Leu Val Ile Pro Asp Val Phe Glu Arg Lys Leu Ser Ile Ser  
130 135 140

Asp Gly Tyr Leu Ile Met Val Asp Phe Ile Arg Ser Ile Phe Ser Asp  
145 150 155 160

Phe Tyr Gln Pro Ile Glu His Phe Glu Val Glu Thr Ser Tyr Cys Pro  
165 170 175

Gly Lys Phe Asp Leu Ser Ile Asn Gly Lys Lys Phe Ala Gly Leu Ala  
180 185 190

Gln Arg Arg Ile Lys Asn Gly Ile Ala Val Ser Ile Tyr Leu Ser Val  
195 200 205

Cys Gly Asp Gln Lys Gly Arg Ser Gln Met Ile Ser Asp Phe Tyr Lys  
210 215 220

Ile Gly Leu Gly Asp Thr Gly Ser Pro Ile Ala Tyr Pro Asn Val Asp  
225 230 235 240

Pro	Glu	Ile	Met	Ala	Asn	Leu	Ser	Asp	Leu	Leu	Asp	Cys	Pro	Met	Thr
				245					250					255	
Val	Glu	Asp	Val	Ile	Asp	Arg	Met	Leu	Ile	Ser	Leu	Lys	Gln	Val	Gly
			260					265					270		
Phe	Asn	Asp	Arg	Leu	Leu	Met	Ile	Arg	Pro	Asp	Leu	Val	Ala	Glu	Phe
		275					280					285			
Asp	Arg	Phe	Gln	Ala	Lys	Ser	Met	Ala	Asn	Lys	Gly	Met	Val	Ser	Arg
	290					295					300				

Asp Glu  
305

<210> 41  
 <211> 867  
 <212> DNA  
 <213> Streptococcus agalactiae

<400> 41

ttggaagggtt tacttattgc attgattccc atgtttgcgt gggaaagtat tggatttggt	60
agtaataaaa ttggagggcg tccaaatcaa caaacatttg gaatgacttt aggagcattg	120
ctatttgcca ttatcgtatg gttattttaa cagccagaga tgactgcctc attgtggatt	180
tttggtatct taggtggtat cctatgggtca gtcggccaaa atgggtcaatt tcaagcaatg	240
aaatatatgg gagtctctgt tgctaatacca ctgtcaagtgt gtgcacaatt agtaggtgga	300
agcctagttg gtgcttttagt ctttcatgaa tggactaagc caatccaatt tatttttagga	360
ttgacagcgt tgacattatt agttatcggc ttctatttct caagtaaacg tgatgtttca	420
gaacaagctt tggcaacaca tcaagagttt tcaaaaggat ttgctacaat tgcttattca	480
actgtaggtt acatctcgta cgcagtttta tttacaaca ttatgaagtt cgacgctatg	540
gccgtcattt tacccatggc tgttggaatg tgtctaggtg caatttgttt catgaagttt	600
cgtgttaact ttgaggctgt tgttgttaaa aatatgatta caggtctcat gtggggcggt	660
ggtaatgtct tcatgttatt ggcagcagct aaagcagggc tagcaattgc ttttagtttt	720
tctcaacttg gagtaattat ctctattatt ggtgggtattt tatttttagg tgagacaaaa	780
acgaagaaag agcagaaatg ggttgtcatg ggtatccttt gttttgttat gggtgctata	840
ttacttggtg ttgttaaatac ttattaa	867

<210> 42  
 <211> 288  
 <212> PRT  
 <213> Streptococcus agalactiae

<400> 42

Met	Glu	Gly	Leu	Leu	Ile	Ala	Leu	Ile	Pro	Met	Phe	Ala	Trp	Glu	Ser
1				5					10					15	
Ile	Gly	Phe	Val	Ser	Asn	Lys	Ile	Gly	Gly	Arg	Pro	Asn	Gln	Gln	Thr
			20					25					30		
Phe	Gly	Met	Thr	Leu	Gly	Ala	Leu	Leu	Phe	Ala	Ile	Ile	Val	Trp	Leu
		35					40					45			
Phe	Lys	Gln	Pro	Glu	Met	Thr	Ala	Ser	Leu	Trp	Ile	Phe	Gly	Ile	Leu
	50					55					60				
Gly	Gly	Ile	Leu	Trp	Ser	Val	Gly	Gln	Asn	Gly	Gln	Phe	Gln	Ala	Met
65					70				75						80
Lys	Tyr	Met	Gly	Val	Ser	Val	Ala	Asn	Pro	Leu	Ser	Ser	Gly	Ala	Gln
				85				90						95	
Leu	Val	Gly	Gly	Ser	Leu	Val	Gly	Ala	Leu	Val	Phe	His	Glu	Trp	Thr
			100					105					110		
Lys	Pro	Ile	Gln	Phe	Ile	Leu	Gly	Leu	Thr	Ala	Leu	Thr	Leu	Leu	Val
		115					120					125			
Ile	Gly	Phe	Tyr	Phe	Ser	Ser	Lys	Arg	Asp	Val	Ser	Glu	Gln	Ala	Leu
	130					135					140				
Ala	Thr	His	Gln	Glu	Phe	Ser	Lys	Gly	Phe	Ala	Thr	Ile	Ala	Tyr	Ser
145					150					155					160
Thr	Val	Gly	Tyr	Ile	Ser	Tyr	Ala	Val	Leu	Phe	Asn	Asn	Ile	Met	Lys
				165					170					175	
Phe	Asp	Ala	Met	Ala	Val	Ile	Leu	Pro	Met	Ala	Val	Gly	Met	Cys	Leu
			180					185					190		
Gly	Ala	Ile	Cys	Phe	Met	Lys	Phe	Arg	Val	Asn	Phe	Glu	Ala	Val	Val
		195					200					205			
Val	Lys	Asn	Met	Ile	Thr	Gly	Leu	Met	Trp	Gly	Val	Gly	Asn	Val	Phe
	210					215					220				
Met	Leu	Leu	Ala	Ala	Ala	Lys	Ala	Gly	Leu	Ala	Ile	Ala	Phe	Ser	Phe
225					230					235					240
Ser	Gln	Leu	Gly	Val	Ile	Ile	Ser	Ile	Ile	Gly	Gly	Ile	Leu	Phe	Leu
				245					250					255	
Gly	Glu	Thr	Lys	Thr	Lys	Lys	Glu	Gln	Lys	Trp	Val	Val	Met	Gly	Ile
			260					265					270		
Leu	Cys	Phe	Val	Met	Gly	Ala	Ile	Leu	Leu	Gly	Ile	Val	Lys	Ser	Tyr
		275					280					285			

<210> 43

<211> 960  
 <212> DNA  
 <213> Streptococcus agalactiae

<400> 43  
 atgacaactt actacgaagc tataaactgg aacgaaattg aagatggttat tgataaatca 60  
 acttgggaaa aactaaccga acaatttttg ctcgatacac gtatcccttt atcaaattgac 120  
 ttagacgatt ggcgcaaact ttccgctcaa gaaaaagatc ttggttgcaa ggttttttgga 180  
 ggcttaaccc tacttgatac catgcaatca gaaactgggtg ttgaagctat tcgtgccgat 240  
 gttcgcacgc ctcacgaaga agctgtctta aacaatatc aattcatgga atctgttcac 300  
 gctaaatctt attcttcaat tttctcaact ttaaatacta aatcagaaat tgaagaaatt 360  
 ttcgagtgga ctaataataa tgagttcctt caagaaaaag cacgtattat caatgacatt 420  
 tatgctaattg gaaatgccct tcaaaaaaag gtggcttcca cctacctga aactttcctt 480  
 ttttattctg gctttttcac acctctttac tatttgggaa ataataagtt agcaaattgt 540  
 gctgaaatca ttaaattaat tttcgtgat gaatctgtac atgggtactta tatcggttac 600  
 aaattccagc ttggttttta cgaattacca gaagatgagc aagagaattt tcgtgattgg 660  
 atgtatgacc tcctttatca gctgtatgaa aacgaagaaa aatacaccaa gacactttat 720  
 gatggcgtag gatggactga agaagttatg acctttttac gctacaatgc taataaagct 780  
 cttatgaatt taggacaaga tcctttattc ccagatacag caaatgatgt caaccaatt 840  
 gttatgaatg gtatttcaac aggaacatca aaccatgact tcttctctca agtaggtaat 900  
 ggttacctac ttggtagcgt tgaagctatg catgatgatg actataacta tggattataa 960

<210> 44  
 <211> 319  
 <212> PRT  
 <213> Streptococcus agalactiae

<400> 44  
 Met Thr Thr Tyr Tyr Glu Ala Ile Asn Trp Asn Glu Ile Glu Asp Val  
 1 5 10 15  
 Ile Asp Lys Ser Thr Trp Glu Lys Leu Thr Glu Gln Phe Trp Leu Asp  
 20 25 30  
 Thr Arg Ile Pro Leu Ser Asn Asp Leu Asp Asp Trp Arg Lys Leu Ser  
 35 40 45  
 Ala Gln Glu Lys Asp Leu Val Gly Lys Val Phe Gly Gly Leu Thr Leu  
 50 55 60

Leu	Asp	Thr	Met	Gln	Ser	Glu	Thr	Gly	Val	Glu	Ala	Ile	Arg	Ala	Asp	
65					70					75					80	
Val	Arg	Thr	Pro	His	Glu	Glu	Ala	Val	Leu	Asn	Asn	Ile	Gln	Phe	Met	
				85					90					95		
Glu	Ser	Val	His	Ala	Lys	Ser	Tyr	Ser	Ser	Ile	Phe	Ser	Thr	Leu	Asn	
			100					105					110			
Thr	Lys	Ser	Glu	Ile	Glu	Glu	Ile	Phe	Glu	Trp	Thr	Asn	Asn	Asn	Glu	
		115					120					125				
Phe	Leu	Gln	Glu	Lys	Ala	Arg	Ile	Ile	Asn	Asp	Ile	Tyr	Ala	Asn	Gly	
	130					135					140					
Asn	Ala	Leu	Gln	Lys	Lys	Val	Ala	Ser	Thr	Tyr	Leu	Glu	Thr	Phe	Leu	
145					150					155					160	
Phe	Tyr	Ser	Gly	Phe	Phe	Thr	Pro	Leu	Tyr	Tyr	Leu	Gly	Asn	Asn	Lys	
			165					170						175		
Leu	Ala	Asn	Val	Ala	Glu	Ile	Ile	Lys	Leu	Ile	Ile	Arg	Asp	Glu	Ser	
			180					185					190			
Val	His	Gly	Thr	Tyr	Ile	Gly	Tyr	Lys	Phe	Gln	Leu	Gly	Phe	Asn	Glu	
		195				200						205				
Leu	Pro	Glu	Asp	Glu	Gln	Glu	Asn	Phe	Arg	Asp	Trp	Met	Tyr	Asp	Leu	
	210					215					220					
Leu	Tyr	Gln	Leu	Tyr	Glu	Asn	Glu	Glu	Lys	Tyr	Thr	Lys	Thr	Leu	Tyr	
225					230				235					240		
Asp	Gly	Val	Gly	Trp	Thr	Glu	Glu	Val	Met	Thr	Phe	Leu	Arg	Tyr	Asn	
			245					250						255		
Ala	Asn	Lys	Ala	Leu	Met	Asn	Leu	Gly	Gln	Asp	Pro	Leu	Phe	Pro	Asp	
			260					265					270			
Thr	Ala	Asn	Asp	Val	Asn	Pro	Ile	Val	Met	Asn	Gly	Ile	Ser	Thr	Gly	
		275				280						285				
Thr	Ser	Asn	His	Asp	Phe	Phe	Ser	Gln	Val	Gly	Asn	Gly	Tyr	Leu	Leu	
	290					295					300					
Gly	Ser	Val	Glu	Ala	Met	His	Asp	Asp	Asp	Tyr	Asn	Tyr	Gly	Leu		
305					310					315						

<210> 45  
 <211> 311  
 <212> DNA  
 <213> Streptococcus agalactiae

<400> 45  
 atgaattgggt cacgtatctg ggaactcgta aaaattaata tcctttattc aaaccctcag 60  
 actctatcgg cactaagaaa aaagcaagaa aagcatccta aaaaagaatt ttcagcttat 120

aaatccatgt ttagaaatca gttatttcag attttgctct tttcaataat ttatgtattt 180  
 ctctttgtat cacttgattt taaagaatat ccgggctatt tcacgttcta cattggtatc 240  
 tttacactag tatccattat ctactctttt attgcatgt acagtgtttt ctatgagagt 300  
 gacgatgtta a 311

<210> 46  
 <211> 103  
 <212> PRT  
 <213> Streptococcus agalactiae  
 <400> 46

Met Asn Trp Ser Arg Ile Trp Glu Leu Val Lys Ile Asn Ile Leu Tyr  
 1 5 10 15  
 Ser Asn Pro Gln Thr Leu Ser Ala Leu Arg Lys Lys Gln Glu Lys His  
 20 25 30  
 Pro Lys Lys Glu Phe Ser Ala Tyr Lys Ser Met Phe Arg Asn Gln Leu  
 35 40 45  
 Phe Gln Ile Leu Leu Phe Ser Ile Ile Tyr Val Phe Leu Phe Val Ser  
 50 55 60  
 Leu Asp Phe Lys Glu Tyr Pro Gly Tyr Phe Thr Phe Tyr Ile Gly Ile  
 65 70 75 80  
 Phe Thr Leu Val Ser Ile Ile Tyr Ser Phe Ile Ala Met Tyr Ser Val  
 85 90 95  
 Phe Tyr Glu Ser Asp Asp Val  
 100

<210> 47  
 <211> 312  
 <212> DNA  
 <213> Streptococcus agalactiae  
 <400> 47

taatctttta gtcaacggag caacaggaaa attgcaggct atgcgacaga tattccacca 60  
 cataatttag cagaagtcac tgatgctgtc gtgtacatga ttgatcacc taaagctaaa 120  
 ttagataaat taatggaatt tctacctggc ccagattttc caactggcgc tatcattcaa 180  
 ggaaaagatg aaattcgtaa ggcataatgag actggtaagg ggagagtagc ggttcgctcg 240  
 cgaactgcta ttgaaacctt aaaagggtggc aagaaacaaa ttattgttac tgaaattcct 300  
 tatgaagtta at 312

<210> 48  
 <211> 103  
 <212> PRT  
 <213> Streptococcus agalactiae

<400> 48

Ser	Phe	Ser	Gln	Arg	Ser	Asn	Arg	Lys	Ile	Ala	Gly	Tyr	Ala	Thr	Asp
1				5					10					15	
Ile	Pro	Pro	His	Asn	Leu	Ala	Glu	Val	Ile	Asp	Ala	Val	Val	Tyr	Met
			20					25					30		
Ile	Asp	His	Pro	Lys	Ala	Lys	Leu	Asp	Lys	Leu	Met	Glu	Phe	Leu	Pro
		35					40					45			
Gly	Pro	Asp	Phe	Pro	Thr	Gly	Ala	Ile	Ile	Gln	Gly	Lys	Asp	Glu	Ile
	50					55					60				
Arg	Lys	Ala	Tyr	Glu	Thr	Gly	Lys	Gly	Arg	Val	Ala	Val	Arg	Ser	Arg
65					70				75					80	
Thr	Ala	Ile	Glu	Thr	Leu	Lys	Gly	Gly	Lys	Lys	Gln	Ile	Ile	Val	Thr
			85					90						95	
Glu	Ile	Pro	Tyr	Glu	Val	Asn									
				100											

<210> 49  
 <211> 654  
 <212> DNA  
 <213> Streptococcus agalactiae

<400> 49

atgggacgta agtgggccaa tattgttgcc aaaaagactg ctaaagatgg tgctaactca	60
aaagtatacg ctaaattcgg tgttgaaata tatgttgctg caaagcaagg tgaaccagac	120
cccgagtcaa actcagctct aaaattcggt ttggaccgtg ctaagcaagc acaagttcca	180
aagcatgtta ttgataaagc gattgataaa gccaaaggaa acacagatga aactttcgta	240
gagggacgct atgaaggttt tgggccaaat ggttcaatga ttattgtgga tactttgaca	300
tcaaattgta accgtacggc agcaaattgta cgtactgctt acggtaagaa cggtggcaat	360
atgggagctt caggatcggg atcctactta tttgataaaa aaggtgtcat cgtttttgct	420
ggtgatgatg ctgacactgt cttcgaacaa ttacttgaag cggatgtaga cgtagatgat	480
gttgaagcag aagaggggaac aataacagtt tataccgccc caacagatct tcataaaggt	540
atccaagcac ttcgcgataa tgggtgtagaa gaattccaag ttactgaact tgaaatgatt	600
cctcaatcag aagtagtatt ggaaggatgat gaccttgaaa cttttgaaaa gctt	654

<210> 50  
 <211> 218  
 <212> PRT  
 <213> Streptococcus agalactiae

<400> 50

Met	Gly	Arg	Lys	Trp	Ala	Asn	Ile	Val	Ala	Lys	Lys	Thr	Ala	Lys	Asp
1				5					10					15	
Gly	Ala	Asn	Ser	Lys	Val	Tyr	Ala	Lys	Phe	Gly	Val	Glu	Ile	Tyr	Val
			20					25					30		
Ala	Ala	Lys	Gln	Gly	Glu	Pro	Asp	Pro	Glu	Ser	Asn	Ser	Ala	Leu	Lys
		35					40					45			
Phe	Val	Leu	Asp	Arg	Ala	Lys	Gln	Ala	Gln	Val	Pro	Lys	His	Val	Ile
	50					55					60				
Asp	Lys	Ala	Ile	Asp	Lys	Ala	Lys	Gly	Asn	Thr	Asp	Glu	Thr	Phe	Val
65					70				75						80
Glu	Gly	Arg	Tyr	Glu	Gly	Phe	Gly	Pro	Asn	Gly	Ser	Met	Ile	Ile	Val
				85					90					95	
Asp	Thr	Leu	Thr	Ser	Asn	Val	Asn	Arg	Thr	Ala	Ala	Asn	Val	Arg	Thr
			100					105					110		
Ala	Tyr	Gly	Lys	Asn	Gly	Gly	Asn	Met	Gly	Ala	Ser	Gly	Ser	Val	Ser
		115					120					125			
Tyr	Leu	Phe	Asp	Lys	Lys	Gly	Val	Ile	Val	Phe	Ala	Gly	Asp	Asp	Ala
	130					135					140				
Asp	Thr	Val	Phe	Glu	Gln	Leu	Leu	Glu	Ala	Asp	Val	Asp	Val	Asp	Asp
145					150				155						160
Val	Glu	Ala	Glu	Glu	Gly	Thr	Ile	Thr	Val	Tyr	Thr	Ala	Pro	Thr	Asp
			165						170					175	
Leu	His	Lys	Gly	Ile	Gln	Ala	Leu	Arg	Asp	Asn	Gly	Val	Glu	Glu	Phe
			180					185					190		
Gln	Val	Thr	Glu	Leu	Glu	Met	Ile	Pro	Gln	Ser	Glu	Val	Val	Leu	Glu
		195					200					205			
Gly	Asp	Asp	Leu	Glu	Thr	Phe	Glu	Lys	Leu						
	210					215									

<210> 51  
 <211> 135  
 <212> DNA  
 <213> Streptococcus agalactiae

<400> 51

ttggagaaat atttgaagaa cccgattaca tggattggat tagttcttgt ggttacgtgg 60

tttttaacta aaagtagtga attttttgatt tttgggtgtgt gtgtcttggt gttagtattt 120

gctagtcaaa gtgat 135

<210> 52  
<211> 45  
<212> PRT  
<213> Streptococcus agalactiae

<400> 52

Met Glu Lys Tyr Leu Lys Asn Pro Ile Thr Trp Ile Gly Leu Val Leu  
1 5 10 15

Val Val Thr Trp Phe Leu Thr Lys Ser Ser Glu Phe Leu Ile Phe Gly  
20 25 30

Val Cys Val Leu Leu Leu Val Phe Ala Ser Gln Ser Asp  
35 40 45

<210> 53  
<211> 318  
<212> DNA  
<213> Streptococcus agalactiae

<400> 53

atgacacaat cagatgcata tctctcggtg aacgcgaaga cacgcttttag agatcgcaca 60

ggtaattatc attttacttc ggataaagag gctggttgaa aatatatgat agaacatggt 120

gaacctaata cgatgggtgtt cacatcacta attgaaaagc tagattattt ggtttctaata 180

aactactatg aatcggacct tctaaaacaa tataaccttg agtttatttg ccaaattttt 240

gagcatgcat acgctaagaa atttgctttt ctaaatttta tgggggcttt aaaattttat 300

aatgcttatg ctcttaata 318

<210> 54  
<211> 106  
<212> PRT  
<213> Streptococcus agalactiae

<400> 54

Met Thr Gln Ser Asp Ala Tyr Leu Ser Leu Asn Ala Lys Thr Arg Phe  
1 5 10 15

Arg Asp Arg Thr Gly Asn Tyr His Phe Thr Ser Asp Lys Glu Ala Val  
20 25 30

Glu Gln Tyr Met Ile Glu His Val Glu Pro Asn Thr Met Val Phe Thr  
35 40 45

Ser Leu Ile Glu Lys Leu Asp Tyr Leu Val Ser Asn Asn Tyr Tyr Glu

50		55		60											
Ser	Asp	Leu	Leu	Lys	Gln	Tyr	Asn	Leu	Glu	Phe	Ile	Cys	Gln	Ile	Phe
65					70					75					80
Glu	His	Ala	Tyr	Ala	Lys	Lys	Phe	Ala	Phe	Leu	Asn	Phe	Met	Gly	Ala
				85					90					95	
Leu	Lys	Phe	Tyr	Asn	Ala	Tyr	Ala	Leu	Asn						
			100					105							

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 <212> DNA  
 <213> Streptococcus agalactiae

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 attctcttct ttgggtattat cagattaggt attttttggt ttacagtcta taacgtcatc 180  
 cgttttatgg taggtagctt ggcttactta tttattgcgg caactttaat ctacctttat 240  
 ttctttaaat gggtgcgaaa gaaagatagc ttagtagcag gttttttgat agcttcttta 300  
 ggattattga ttgagtggca tgcttacctt ttctcaatgc ctattttgaa agataaagaa 360  
 attttgcgtt caactgctcg attaattgtg tctgatttaa tgcaatttaa aatcactgtt 420  
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 aagcacgagc aaaataaaaa ggagcgtttt gctaagcgag agatgaaaaa agcaatcgct 660  
 gaacaagagc gcatagagcg tcaaaaagct gaagaagaag cttatttagc ttcggttaat 720  
 gtagaccctg aaacgggtga gattctagag gatcaagctg aggacaattt ggatgatgcg 780  
 ctaccacctg aggtaagtga aacatcaact ccggtatttg agccagagat ccttgcttat 840  
 gagacatcgc ctcaaaatga tcctttacca gtagagccga caatttattt agaagactat 900  
 gattcgccga ttcctaatat gagagaaaat gatgaggaaa tggtttatga tttagatgat 960  
 gatgtagatg atagtgatat agaaaatgtc gactttacac ctaaaacgac actggtttat 1020  
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 gatttagtcc gaaagaatat cagagtttta gaagaaacat ttagaagttt tggatatgat 1140  
 gtaaaagtag aacgtgctga aattggacca tcagttacta aatatgaaat taaaccagca 1200

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 cctaactcag aaattgcaac ggtttctttc cgcgaacttt gggaacaatc tgatgccaat 1380  
 cctgaaaacc ttttagaagt accactagga aaagctgtta acggcaatgc tcgcagtttt 1440  
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<210> 56  
 <211> 816  
 <212> PRT  
 <213> Streptococcus agalactiae

<400> 56

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Phe	Phe	Lys	Trp	Leu	Arg	Lys	Lys	Asp	Ser	Leu	Val	Ala	Gly	Phe	Leu
				85					90					95	
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Phe	Leu	Met	Ser	Ser	Leu	Glu	Val	Tyr	Asp	Ile	Val	Glu	Phe	Ile	Arg
			180					185					190		
Ala	Phe	Lys	Asn	Lys	Val	Ala	Glu	Lys	His	Glu	Gln	Asn	Lys	Lys	Glu
		195					200					205			
Arg	Phe	Ala	Lys	Arg	Glu	Met	Lys	Lys	Ala	Ile	Ala	Glu	Gln	Glu	Arg
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Val	Asp	Pro	Glu	Thr	Gly	Glu	Ile	Leu	Glu	Asp	Gln	Ala	Glu	Asp	Asn
				245					250					255	
Leu	Asp	Asp	Ala	Leu	Pro	Pro	Glu	Val	Ser	Glu	Thr	Ser	Thr	Pro	Val
			260					265					270		
Phe	Glu	Pro	Glu	Ile	Leu	Ala	Tyr	Glu	Thr	Ser	Pro	Gln	Asn	Asp	Pro
	275					280						285			
Leu	Pro	Val	Glu	Pro	Thr	Ile	Tyr	Leu	Glu	Asp	Tyr	Asp	Ser	Pro	Ile
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Pro	Asn	Met	Arg	Glu	Asn	Asp	Glu	Glu	Met	Val	Tyr	Asp	Leu	Asp	Asp
305					310					315					320
Asp	Val	Asp	Asp	Ser	Asp	Ile	Glu	Asn	Val	Asp	Phe	Thr	Pro	Lys	Thr
				325				330						335	
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		355					360					365			
Val	Leu	Glu	Glu	Thr	Phe	Arg	Ser	Phe	Gly	Ile	Asp	Val	Lys	Val	Glu
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385					390					395					400
Val	Gly	Val	Arg	Val	Asn	Arg	Ile	Ser	Asn	Leu	Ser	Asp	Asp	Leu	Ala
				405					410					415	
Leu	Ala	Leu	Ala	Ala	Lys	Asp	Val	Arg	Ile	Glu	Ala	Pro	Ile	Pro	Gly
			420					425					430		
Lys	Ser	Leu	Ile	Gly	Ile	Glu	Val	Pro	Asn	Ser	Glu	Ile	Ala	Thr	Val
		435					440					445			
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	450					455					460				
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465					470					475					480
Asn	Leu	Ala	Arg	Met	Pro	His	Leu	Leu	Val	Ala	Gly	Ser	Thr	Gly	Ser
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Gly	Lys	Ser	Val	Ala	Val	Asn	Gly	Ile	Ile	Ser	Ser	Ile	Leu	Met	Lys
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Ala	Arg	Pro	Asp	Gln	Val	Lys	Phe	Met	Met	Ile	Asp	Pro	Lys	Met	Val
		515					520					525			
Glu	Leu	Ser	Val	Tyr	Asn	Asp	Ile	Pro	His	Leu	Leu	Ile	Pro	Val	Val
	530					535					540				
Thr	Asn	Pro	Arg	Lys	Ala	Ser	Lys	Ala	Leu	Gln	Lys	Val	Val	Asp	Glu
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Met	Glu	Asn	Arg	Tyr	Glu	Leu	Phe	Ser	Lys	Ile	Gly	Val	Arg	Asn	Ile
				565					570					575	
Ala	Gly	Tyr	Asn	Thr	Lys	Val	Glu	Glu	Phe	Asn	Ala	Ser	Ser	Glu	Gln
			580					585					590		
Lys	Gln	Met	Pro	Leu	Pro	Leu	Ile	Val	Val	Ile	Val	Asp	Glu	Leu	Ala
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625					630					635					640
Gln	Arg	Pro	Ser	Val	Asp	Val	Ile	Ser	Gly	Leu	Ile	Lys	Ala	Asn	Val

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Pro	Ser	Arg	Ile	Ala	Phe	Ala	Val	Ser	Ser	Gly	Thr	Asp	Ser	Arg	Thr
			660					665					670		
Ile	Leu	Asp	Glu	Asn	Gly	Ala	Glu	Lys	Leu	Leu	Gly	Arg	Gly	Asp	Met
		675					680					685			
Leu	Phe	Lys	Pro	Ile	Asp	Glu	Asn	His	Pro	Val	Arg	Leu	Gln	Gly	Ser
	690					695					700				
Phe	Ile	Ser	Asp	Asp	Asp	Val	Glu	Arg	Ile	Val	Gly	Phe	Ile	Lys	Asp
705						710					715				720
Gln	Ala	Glu	Ala	Asp	Tyr	Asp	Asp	Ala	Phe	Asp	Pro	Gly	Glu	Val	Ser
				725					730					735	
Glu	Thr	Asp	Asn	Gly	Ser	Gly	Gly	Gly	Gly	Val	Pro	Glu	Ser	Asp	
			740					745					750		
Pro	Leu	Phe	Glu	Glu	Ala	Lys	Gly	Leu	Val	Leu	Glu	Thr	Gln	Lys	Ala
		755					760						765		
Ser	Ala	Ser	Met	Ile	Gln	Arg	Arg	Leu	Ser	Val	Gly	Phe	Asn	Arg	Ala
		770				775					780				
Thr	Arg	Leu	Met	Glu	Glu	Leu	Glu	Ala	Ala	Gly	Val	Ile	Gly	Pro	Ala
785						790					795				800
Glu	Gly	Thr	Lys	Pro	Arg	Lys	Val	Leu	Met	Thr	Pro	Thr	Pro	Ser	Glu
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 <213> Streptococcus agalactiae

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 aaacaagaaa ttatcgcatt tcaacccgat ttgatactaa tggatattac gttaccctat 180  
 tttaatgggtt ttactggac tgcagaattg cgtaagtttt taacaattcc tattattttc 240  
 atttcatcta gtaatgatga aatggatatg gttatggcat taaatatggg gggatgatgac 300  
 ttattttcaa aaccattctc tctagctgta ttagatgcta agctaactgc tattttaagg 360  
 agaagtcaac aatttatcca acaggaatta acttttgggg gatttacgtt gacaagagaa 420  
 gggttattgt ctagccaaga taaagagggtt attttatcgc caacagaaaa taaaatccta 480  
 tctatcttgc tcatgcatcc taaacaagta gtctcaaaag agtctctatt agagaaactt 540  
 tgggaaaatg atagttttat tgatcaaaat acacttaatg ttaatatgac acgcttacgt 600

aaaaaaattg tcccaatagg ttttgattac attcatacag tgagaggagt tgggtattta 660

ctacaatga 669

<210> 58  
<211> 222  
<212> PRT  
<213> Streptococcus agalactiae

<400> 58

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Ile	Val	Ser	Leu	Leu	Lys	Asp	His	Leu	Ser	Ala	Ser	Tyr	His	Val	Ser
			20					25					30		
Ser	Val	Ser	Asn	Phe	Arg	Asp	Val	Lys	Gln	Glu	Ile	Ile	Ala	Phe	Gln
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	50					55					60				
Tyr	Trp	Thr	Ala	Glu	Leu	Arg	Lys	Phe	Leu	Thr	Ile	Pro	Ile	Ile	Phe
65					70					75					80
Ile	Ser	Ser	Ser	Asn	Asp	Glu	Met	Asp	Met	Val	Met	Ala	Leu	Asn	Met
				85					90					95	
Gly	Gly	Asp	Asp	Phe	Ile	Ser	Lys	Pro	Phe	Ser	Leu	Ala	Val	Leu	Asp
			100					105					110		
Ala	Lys	Leu	Thr	Ala	Ile	Leu	Arg	Arg	Ser	Gln	Gln	Phe	Ile	Gln	Gln
		115					120					125			
Glu	Leu	Thr	Phe	Gly	Gly	Phe	Thr	Leu	Thr	Arg	Glu	Gly	Leu	Leu	Ser
	130					135					140				
Ser	Gln	Asp	Lys	Glu	Val	Ile	Leu	Ser	Pro	Thr	Glu	Asn	Lys	Ile	Leu
145					150					155					160
Ser	Ile	Leu	Leu	Met	His	Pro	Lys	Gln	Val	Val	Ser	Lys	Glu	Ser	Leu
				165					170					175	
Leu	Glu	Lys	Leu	Trp	Glu	Asn	Asp	Ser	Phe	Ile	Asp	Gln	Asn	Thr	Leu
			180					185					190		
Asn	Val	Asn	Met	Thr	Arg	Leu	Arg	Lys	Lys	Ile	Val	Pro	Ile	Gly	Phe
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	210					215					220				

<210> 59  
<211> 1341

<212> DNA

<213> Streptococcus agalactiae

<400> 59

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cagtatagtc agctacattt ggcagggtgtg tcaactgcta gtaatttatg gactccgttt	180
ttcgctttat tagtaggtat gatttcagca ttagtaccag tagttgggtca acatttgggt	240
agaggaaata aagaacaaat tcgcacagaa tttcatcaat ttctatatatt aggtttgata	300
ctgtccttaa tattatTTTT aatcatgcaa tttattgctc aacctgtctt ggggagtttg	360
ggtttagaag atgaagttct agcagttggg cgtgggttatt taaattatat gttgattgga	420
atcatgccgc tgggtgttggt tagcatttgc cgttcattct ttgatgcatt ggggttaaca	480
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attaanaacat atcatatatg gactctggaa agaataaaaag ctcccttgat tattgaagat	720
attcgattgg gattaccgat tggtttacia atttttgcag aagttgcaat ttttgcagta	780
gtaggcttat tcatggcaaa attttcttca atcattattg cagcacatca ggctgctatg	840
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cgcttaacag cggtagggat tacatcagga accttactat ttttatttct atttcgtgag	1020
aatgtagcag caatgtataa tagtgcccct cactttgtcg ctattacagc tcaattccta	1080
acttatagtc tctttttcca gtttgcagat gcttatgcag ctccgtgtaca ggggatttta	1140
cgaggctata aggatacaac aaaaccattt atgatecggg cgggctctta ttgggttatgt	1200
gctttgccat tagcgggttat cttagaaaaa aatagccagt taggtccgtt tgccctattgg	1260
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<210> 60

<211> 446

<212> PRT

<213> Streptococcus agalactiae

<400> 60

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			20					25					30		
Phe	Ile	Asp	Ser	Val	Met	Thr	Gly	Gln	Tyr	Ser	Gln	Leu	His	Leu	Ala
		35					40					45			
Gly	Val	Ser	Thr	Ala	Ser	Asn	Leu	Trp	Thr	Pro	Phe	Phe	Ala	Leu	Leu
	50					55					60				
Val	Gly	Met	Ile	Ser	Ala	Leu	Val	Pro	Val	Val	Gly	Gln	His	Leu	Gly
65					70				75						80
Arg	Gly	Asn	Lys	Glu	Gln	Ile	Arg	Thr	Glu	Phe	His	Gln	Phe	Leu	Tyr
				85					90					95	
Leu	Gly	Leu	Ile	Leu	Ser	Leu	Ile	Leu	Phe	Leu	Ile	Met	Gln	Phe	Ile
			100					105					110		
Ala	Gln	Pro	Val	Leu	Gly	Ser	Leu	Gly	Leu	Glu	Asp	Glu	Val	Leu	Ala
		115					120					125			
Val	Gly	Arg	Gly	Tyr	Leu	Asn	Tyr	Met	Leu	Ile	Gly	Ile	Met	Pro	Leu
	130					135					140				
Val	Leu	Phe	Ser	Ile	Cys	Arg	Ser	Phe	Phe	Asp	Ala	Leu	Gly	Leu	Thr
145					150					155					160
Arg	Leu	Ser	Met	Tyr	Leu	Met	Leu	Leu	Ile	Leu	Pro	Phe	Asn	Ser	Phe
				165					170					175	
Phe	Asn	Tyr	Met	Leu	Ile	Tyr	Gly	Lys	Phe	Gly	Met	Pro	Arg	Leu	Gly
			180					185					190		
Gly	Ala	Gly	Ala	Gly	Leu	Gly	Thr	Ser	Leu	Thr	Tyr	Trp	Ala	Ile	Phe
		195					200					205			
Ile	Gly	Ile	Ile	Ile	Val	Met	Ser	Leu	His	Pro	Gln	Ile	Lys	Thr	Tyr
	210					215					220				
His	Ile	Trp	Thr	Leu	Glu	Arg	Ile	Lys	Ala	Pro	Leu	Ile	Ile	Glu	Asp
225					230					235					240
Ile	Arg	Leu	Gly	Leu	Pro	Ile	Gly	Leu	Gln	Ile	Phe	Ala	Glu	Val	Ala
				245					250					255	
Ile	Phe	Ala	Val	Val	Gly	Leu	Phe	Met	Ala	Lys	Phe	Ser	Ser	Ile	Ile
			260					265					270		
Ile	Ala	Ala	His	Gln	Ala	Ala	Met	Asn	Phe	Ser	Ser	Leu	Met	Tyr	Ala
		275					280					285			
Phe	Pro	Leu	Ser	Ile	Ser	Thr	Ala	Leu	Ala	Ile	Thr	Ile	Ser	Phe	Glu
	290					295					300				

Val	Gly	Ala	Glu	Arg	Phe	Gln	Asp	Ala	Thr	Thr	Tyr	Ser	Arg	Ile	Gly	
305					310				315						320	
Arg	Leu	Thr	Ala	Val	Gly	Ile	Thr	Ser	Gly	Thr	Leu	Leu	Phe	Leu	Phe	
				325					330					335		
Leu	Phe	Arg	Glu	Asn	Val	Ala	Ala	Met	Tyr	Asn	Ser	Ala	Pro	His	Phe	
			340					345					350			
Val	Ala	Ile	Thr	Ala	Gln	Phe	Leu	Thr	Tyr	Ser	Leu	Phe	Phe	Gln	Phe	
		355					360					365				
Ala	Asp	Ala	Tyr	Ala	Ala	Pro	Val	Gln	Gly	Ile	Leu	Arg	Gly	Tyr	Lys	
	370					375					380					
Asp	Thr	Thr	Lys	Pro	Phe	Met	Ile	Gly	Ala	Gly	Ser	Tyr	Trp	Leu	Cys	
385					390					395					400	
Ala	Leu	Pro	Leu	Ala	Val	Ile	Leu	Glu	Lys	Asn	Ser	Gln	Leu	Gly	Pro	
				405					410					415		
Phe	Ala	Tyr	Trp	Ile	Gly	Leu	Ile	Thr	Gly	Ile	Phe	Val	Cys	Gly	Leu	
			420					425					430			
Phe	Leu	Asn	Gln	Arg	Leu	Gln	Lys	Ile	Lys	Lys	Leu	Tyr	Tyr			
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<210> 61  
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 <212> DNA  
 <213> Streptococcus agalactiae

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tcaataaaat gctataataa aaccatgtca ttttcattaa aaattagaaa tccatacggg	180
gaacataccg ttaaagaact ccttgaagat tattttttga ttccacgtaa gattagacat	240
tttttgcggtg ttaaaaaaca tgtacttata aacaatgaat tcattaattg gcaaactgtc	300
gtccaagaaa acgatactat taccttaatc tttgatgatg aggattacc c tactaaaaa	360
attcctctgg gcagagcaga gcttattgat tgtctttatg aggatgaaca tcttattatc	420
gttaataaac ctgaaggat gaaaactcac ggtaaccaac caaatgaaat agcactgtta	480
aatcatgtat ctgcctattc tggacaaaca tgctatggtg ttcacgcct agatatggag	540
accagtggag ctgttttatt tgctaaaaat ccatttatac ttccccttat caatcaacgc	600
ttagaacgaa aagaaatttg gcgtgaatat tgggctttag ttgaaggaaa attttcacct	660
aagcatcaag ttttgagaga caaaattgga cggaaccgtc atgacagacg taaacgaatc	720

attgattcta aaaacggtca acatgctatg acaatcattg acgttttgaa gtatatccaa 780  
aatagtagtc tcataaaatg ccgactggaa accggaagaa cccatcaaat tcgcattcac 840  
ttatctcatc acggacatcc tttaatagga gatcccctct acaacccttc ttctaataat 900  
gaaagggttaa tgctacacgc tcaccgattg actctatccc atccattaac ttgcgaaact 960  
attagcgtag agggccccttc atctactttc gagaagggtt taaacaatta taaaaaagga 1020  
gttggataa 1029

<210> 62  
<211> 342  
<212> PRT  
<213> Streptococcus agalactiae

<400> 62

Met	Leu	Val	Ser	Ser	Leu	Val	Ser	Cys	Ser	Phe	Phe	Leu	Val	Ile	Ser	1	5	10	15
Ser	Leu	Ser	Ser	Ser	Thr	Arg	Asn	Lys	Ser	Ile	Asn	Leu	Ser	Asn	Asn	20	25	30	
Phe	Ile	Asp	Leu	Leu	Tyr	Gln	Phe	Ser	Ile	Lys	Cys	Tyr	Asn	Lys	Thr	35	40	45	
Met	Ser	Phe	Ser	Leu	Lys	Ile	Arg	Asn	Pro	Tyr	Gly	Glu	His	Thr	Val	50	55	60	
Lys	Glu	Leu	Leu	Glu	Asp	Tyr	Phe	Leu	Ile	Pro	Arg	Lys	Ile	Arg	His	65	70	75	80
Phe	Leu	Arg	Val	Lys	Lys	His	Val	Leu	Ile	Asn	Asn	Glu	Phe	Ile	Asn	85	90	95	
Trp	Gln	Thr	Val	Val	Gln	Glu	Asn	Asp	Thr	Ile	Thr	Leu	Ile	Phe	Asp	100	105	110	
Asp	Glu	Asp	Tyr	Pro	Thr	Lys	Lys	Ile	Pro	Leu	Gly	Arg	Ala	Glu	Leu	115	120	125	
Ile	Asp	Cys	Leu	Tyr	Glu	Asp	Glu	His	Leu	Ile	Ile	Val	Asn	Lys	Pro	130	135	140	
Glu	Gly	Met	Lys	Thr	His	Gly	Asn	Gln	Pro	Asn	Glu	Ile	Ala	Leu	Leu	145	150	155	160
Asn	His	Val	Ser	Ala	Tyr	Ser	Gly	Gln	Thr	Cys	Tyr	Val	Val	His	Arg	165	170	175	
Leu	Asp	Met	Glu	Thr	Ser	Gly	Ala	Val	Leu	Phe	Ala	Lys	Asn	Pro	Phe	180	185	190	

Ile Leu Pro Leu Ile Asn Gln Arg Leu Glu Arg Lys Glu Ile Trp Arg  
 195 200 205  
 Glu Tyr Trp Ala Leu Val Glu Gly Lys Phe Ser Pro Lys His Gln Val  
 210 215 220  
 Leu Arg Asp Lys Ile Gly Arg Asn Arg His Asp Arg Arg Lys Arg Ile  
 225 230 235 240  
 Ile Asp Ser Lys Asn Gly Gln His Ala Met Thr Ile Ile Asp Val Leu  
 245 250 255  
 Lys Tyr Ile Gln Asn Ser Ser Leu Ile Lys Cys Arg Leu Glu Thr Gly  
 260 265 270  
 Arg Thr His Gln Ile Arg Ile His Leu Ser His His Gly His Pro Leu  
 275 280 285  
 Ile Gly Asp Pro Leu Tyr Asn Pro Ser Ser Asn Asn Glu Arg Leu Met  
 290 295 300  
 Leu His Ala His Arg Leu Thr Leu Ser His Pro Leu Thr Cys Glu Thr  
 305 310 315 320  
 Ile Ser Val Glu Ala Pro Ser Ser Thr Phe Glu Lys Val Leu Asn Asn  
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 Tyr Lys Lys Gly Val Gly  
 340

<210> 63  
 <211> 2052  
 <212> DNA  
 <213> Streptococcus agalactiae

<400> 63  
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 aatagcgatg aatttagaaa gacagcggga gaggatagag gttttgaaag ggataagttg 180  
 aggtctttgg atatcattcc taaggagat ttatcgacaa gtaatgtcat aggtaatacg 240  
 gacattgcta gtcagatatc gttgggcttt aaaaagaatg cgatgcagga acaccatctt 300  
 actaaaacat tctctcaaaa ggatggaaag ttatcgtctg ttatagaggg gatgcttgct 360  
 attggcaaag agaaagtaga gaaagaaata aaatatagt gtaatttatg gcaaaaatta 420  
 aaagctaagg cacactgcct tgtttgctgt gttgataatt tgaattttga agatataaaa 480  
 tcttattttc aatattattg tcatctaaac catcagctca aattacctaa aggtgctata 540  
 ctttctgcta aaacagaagt atatagggga ggagattttg ggagaaaaaa taaagataat 600  
 gtgtttgggt accgtatccc ctcatatttg aaaacccaaa aaggaacttt acttgcggga 660

gctgatgaaa gaattgagca agcttgtgat tggggaaaca taggaatggg tattcgccgt	720
agtgaggatg atgggtgtcac ttggggaaaa agagaaacta ttgtcaatct ccgtaataac	780
cctagagttc cgctagttac tagtggtgac tatagtggct cacctattaa tatggatatg	840
gcattagttc aagatactag ctccaagacg aaacgtattt tttcaatata tgatatgttt	900
ccagaaggaa gaggcgttat tagtattgct aacacacctg aaaaagaata tacccaaatc	960
ggaggacagt cttatcttaa tttatataat aatggaaaga aatcgaagg ttttactatc	1020
cgtgacaaag gtattgtata taattttaaa gggaaaaaga ctgattatca tgttataaca	1080
gaaactacta aaagtgacca ttcaaacta ggggatattt ataagggaaa acagctactt	1140
ggaaatatat attttacaaa acataaaacg tcaccatttc gtttagcaaa atcaagctat	1200
gtgtggatgt catatagcga tgatgatggg aggacatggg catcacctag agatataaca	1260
gcaagtcttc gtcagaaagg catgaaattt ttgggaatag gacctggaaa aggtatagtt	1320
ttaaaatggg ggccacacgc tggtcgtatt attattcctg cctattctac gaattggaaa	1380
tctcatctaa gaggttcaca atcttcacgc ctaatttatt cagacgacca tggaaaaacg	1440
tggcatactg gaaaagcagt taatgataac cgtatacttt ctaatgggtga aaaaattcac	1500
tccttaacaa tggataataa aaaagaacaa aatacagaat ccgtacccgt tcaattgaaa	1560
aatggggaca ttaagttatt tatgaggaat ctaactggta acctagaagt agccacaagt	1620
aaagacggcg gggagacttg gcaaaacat gttaaacgat ataaggaaat tcatgatgct	1680
tacgtccaac tatcagctat tcgctttgag catgacaaaa aagagtatat tttattagtg	1740
aatgctaatt ggccagggaa gaagtgccaa gatggatatg cacgtctagc gcaagttaat	1800
cgaaatggta gttttaagtg gttatatcac catcacattc aagatgggtc gtttgcttac	1860
aactctgttc aacaacttaa taatgatcaa tttggtgtcc tttatgaaca tagagaaaaa	1920
catcaaaata gttttacttt aaattacaaa gtttttaatt ggagttttct tagtcaaat	1980
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<210> 64  
 <211> 683  
 <212> PRT  
 <213> Streptococcus agalactiae

<400> 64

Glu	Leu	Asn	Ala	Thr	Gln	Pro	Asn	Asn	Arg	Thr	Thr	Tyr	Ile	Ile	Pro	1	5	10	15
Glu	Ser	Ser	His	Ser	Ile	Ala	Glu	Gln	Gln	Arg	Phe	Leu	Ile	Glu	Ser	20	25	30	
Lys	Gly	Ser	Ser	Val	Ala	Leu	Leu	Asn	Ser	Asp	Glu	Phe	Arg	Lys	Thr	35	40	45	
Ala	Gly	Glu	Asp	Arg	Gly	Phe	Glu	Arg	Asp	Lys	Leu	Arg	Ser	Leu	Asp	50	55	60	
Ile	Ile	Pro	Lys	Gly	Asp	Leu	Ser	Thr	Ser	Asn	Val	Ile	Gly	Asn	Thr	65	70	75	80
Asp	Ile	Ala	Ser	Gln	Ile	Ser	Leu	Gly	Phe	Lys	Lys	Asn	Ala	Met	Gln	85	90	95	
Glu	His	His	Leu	Thr	Lys	Thr	Phe	Ser	Gln	Lys	Asp	Gly	Lys	Leu	Ser	100	105	110	
Ser	Val	Ile	Glu	Gly	Met	Leu	Ala	Ile	Gly	Lys	Glu	Lys	Val	Glu	Lys	115	120	125	
Glu	Ile	Lys	Tyr	Ser	Gly	Asn	Leu	Trp	Gln	Lys	Leu	Lys	Ala	Lys	Ala	130	135	140	
His	Cys	Leu	Val	Cys	Cys	Val	Asp	Asn	Leu	Asn	Phe	Glu	Asp	Ile	Lys	145	150	155	160
Ser	Tyr	Phe	Gln	Tyr	Tyr	Cys	His	Leu	Asn	His	Gln	Leu	Lys	Leu	Pro	165	170	175	
Lys	Gly	Ala	Ile	Leu	Ser	Ala	Lys	Thr	Glu	Val	Tyr	Arg	Gly	Gly	Asp	180	185	190	
Phe	Gly	Arg	Lys	Asn	Lys	Asp	Asn	Val	Phe	Gly	Tyr	Arg	Ile	Pro	Ser	195	200	205	
Leu	Leu	Lys	Thr	Gln	Lys	Gly	Thr	Leu	Leu	Ala	Gly	Ala	Asp	Glu	Arg	210	215	220	
Ile	Glu	Gln	Ala	Cys	Asp	Trp	Gly	Asn	Ile	Gly	Met	Val	Ile	Arg	Arg	225	230	235	240
Ser	Glu	Asp	Asp	Gly	Val	Thr	Trp	Gly	Lys	Arg	Glu	Thr	Ile	Val	Asn	245	250	255	
Leu	Arg	Asn	Asn	Pro	Arg	Val	Pro	Leu	Val	Thr	Ser	Gly	Asp	Tyr	Ser	260	265	270	
Gly	Ser	Pro	Ile	Asn	Met	Asp	Met	Ala	Leu	Val	Gln	Asp	Thr	Ser	Ser	275	280	285	
Lys	Thr	Lys	Arg	Ile	Phe	Ser	Ile	Tyr	Asp	Met	Phe	Pro	Glu	Gly	Arg	290	295	300	

Gly	Val	Ile	Ser	Ile	Ala	Asn	Thr	Pro	Glu	Lys	Glu	Tyr	Thr	Gln	Ile	305	310	315	320
Gly	Gly	Gln	Ser	Tyr	Leu	Asn	Leu	Tyr	Asn	Asn	Gly	Lys	Lys	Ser	Lys	325	330	335	
Val	Phe	Thr	Ile	Arg	Asp	Lys	Gly	Ile	Val	Tyr	Asn	Phe	Lys	Gly	Lys	340	345	350	
Lys	Thr	Asp	Tyr	His	Val	Ile	Thr	Glu	Thr	Thr	Lys	Ser	Asp	His	Ser	355	360	365	
Asn	Leu	Gly	Asp	Ile	Tyr	Lys	Gly	Lys	Gln	Leu	Leu	Gly	Asn	Ile	Tyr	370	375	380	
Phe	Thr	Lys	His	Lys	Thr	Ser	Pro	Phe	Arg	Leu	Ala	Lys	Ser	Ser	Tyr	385	390	395	400
Val	Trp	Met	Ser	Tyr	Ser	Asp	Asp	Asp	Gly	Arg	Thr	Trp	Ser	Ser	Pro	405	410	415	
Arg	Asp	Ile	Thr	Ala	Ser	Leu	Arg	Gln	Lys	Gly	Met	Lys	Phe	Leu	Gly	420	425	430	
Ile	Gly	Pro	Gly	Lys	Gly	Ile	Val	Leu	Lys	Trp	Gly	Pro	His	Ala	Gly	435	440	445	
Arg	Ile	Ile	Ile	Pro	Ala	Tyr	Ser	Thr	Asn	Trp	Lys	Ser	His	Leu	Arg	450	455	460	
Gly	Ser	Gln	Ser	Ser	Arg	Leu	Ile	Tyr	Ser	Asp	Asp	His	Gly	Lys	Thr	465	470	475	480
Trp	His	Thr	Gly	Lys	Ala	Val	Asn	Asp	Asn	Arg	Ile	Leu	Ser	Asn	Gly	485	490	495	
Glu	Lys	Ile	His	Ser	Leu	Thr	Met	Asp	Asn	Lys	Lys	Glu	Gln	Asn	Thr	500	505	510	
Glu	Ser	Val	Pro	Val	Gln	Leu	Lys	Asn	Gly	Asp	Ile	Lys	Leu	Phe	Met	515	520	525	
Arg	Asn	Leu	Thr	Gly	Asn	Leu	Glu	Val	Ala	Thr	Ser	Lys	Asp	Gly	Gly	530	535	540	
Glu	Thr	Trp	Gln	Asn	His	Val	Lys	Arg	Tyr	Lys	Glu	Ile	His	Asp	Ala	545	550	555	560
Tyr	Val	Gln	Leu	Ser	Ala	Ile	Arg	Phe	Glu	His	Asp	Lys	Lys	Glu	Tyr	565	570	575	
Ile	Leu	Leu	Val	Asn	Ala	Asn	Gly	Pro	Gly	Lys	Lys	Cys	Gln	Asp	Gly	580	585	590	
Tyr	Ala	Arg	Leu	Ala	Gln	Val	Asn	Arg	Asn	Gly	Ser	Phe	Lys	Trp	Leu	595	600	605	

Tyr His His His Ile Gln Asp Gly Ser Phe Ala Tyr Asn Ser Val Gln  
610 615 620

Gln Leu Asn Asn Asp Gln Phe Gly Val Leu Tyr Glu His Arg Glu Lys  
625 630 635 640

His Gln Asn Ser Phe Thr Leu Asn Tyr Lys Val Phe Asn Trp Ser Phe  
645 650 655

Leu Ser Gln Asn Thr Glu Lys Gln Gly Thr Leu Trp Glu Lys Met Ala  
660 665 670

Ala Asn Trp His Val Leu Phe Lys Phe Tyr Leu  
675 680

<210> 65  
<211> 1188  
<212> DNA  
<213> Streptococcus agalactiae

<400> 65  
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aaagatatta ataaacctaa agcgtctatc gttattgaca ataaagggtca tattttgtgg 180  
gaagataacg ccgatttaga acgtgatccc gctagcatgt ctaaaatggt tactttatat 240  
ttactatttg aagacttagc taaaggaaaa acaaacctca acaccacagt gactgcaaca 300  
gaaacagacc aagccataag taagatttat gaaattagta ataacaatat tcatgctggg 360  
gttgcttata ctattcgtga actgattact atgacggctg tcccgtcatc taatgtagca 420  
actattatga ttgctaacca cttatcacia aacaatcctg acgcctttat taaacgaatc 480  
aatgaaaccg ccaagaaact cggtatgaca aaaactcact ttataaacc cagtggggcg 540  
gtagcgagtg cttttaatgg actttactcc ccaaagaat acgataacaa tgctactaac 600  
gttacgactg cacgtgatct atcaatttta acctatcatt tccttaaaaa ataccctgat 660  
atactgaact atacaaaata tcctgaagtc aaggccatgg tcggaactcc ttatgaagaa 720  
acatttacaa cttataacta ctctaccccc ggcgctaaat ttggattaga aggagtagat 780  
ggcttaaaaa ctggttctag ccctagcgct gcttttaatg ccttagttac agctaaacgc 840  
cagaatactc gcttgataac tgtgggttta ggagttggcg attggtcaga ccaagacgga 900  
gagtactatc gtcacccgtt tgtcaacgct cttgtagaaa aaggttttta agacgctaaa 960  
aatatttctt ctaaaactcc tgtattaaaa gccgttaaac ctaaaaaaga agttactaaa 1020  
accaaaacta aatctattca agaacagcct caaacaaaag aacagtgggt gacaaaaaca 1080

gatcaattta tccaatcaca ttttgtatct attttaattg ttctgggcac catcgctagc 1140

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<210> 66
<211> 395
<212> PRT
<213> Streptococcus agalactiae
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Met Pro Lys Leu Ile Val Ser Phe Leu Cys Ile Leu Leu Ser Leu Thr  
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Thr Arg Glu Ala Gly Tyr Asp Val Lys Asp Ile Asn Lys Pro Lys Ala  
35 40 45

Asp Leu Glu Arg Asp Pro Ala Ser Met Ser Lys Met Phe Thr Leu Tyr  
65 70 75 80

Val Thr Ala Thr Glu Thr Asp Gln Ala Ile Ser Lys Ile Tyr Glu Ile.  
100 105 110

Ile Thr Met Thr Ala Val Pro Ser Ser Asn Val Ala Thr Ile Met Ile  
130 135 140

Asn Glu Thr Ala Lys Lys Leu Gly Met Thr Lys Thr His Phe Tyr Asn  
165 170 175

Pro Ser Gly Ala Val Ala Ser Ala Phe Asn Gly Leu Tyr Ser Pro Lys  
180 185 190

Glu Tyr Asp Asn Asn Ala Thr Asn Val Thr Thr Ala Arg Asp Leu Ser  
195 200 205

Ile Leu Thr Tyr His Phe Leu Lys Lys Tyr Pro Asp Ile Leu Asn Tyr  
210 215 220

Thr Lys Tyr Pro Glu Val Lys Ala Met Val Gly Thr Pro Tyr Glu Glu  
225 230 235 240

Thr	Phe	Thr	Thr	Tyr	Asn	Tyr	Ser	Thr	Pro	Gly	Ala	Lys	Phe	Gly	Leu	
				245					250					255		
Glu	Gly	Val	Asp	Gly	Leu	Lys	Thr	Gly	Ser	Ser	Pro	Ser	Ala	Ala	Phe	
			260					265					270			
Asn	Ala	Leu	Val	Thr	Ala	Lys	Arg	Gln	Asn	Thr	Arg	Leu	Ile	Thr	Val	
		275					280					285				
Val	Leu	Gly	Val	Gly	Asp	Trp	Ser	Asp	Gln	Asp	Gly	Glu	Tyr	Tyr	Arg	
	290					295					300					
His	Pro	Phe	Val	Asn	Ala	Leu	Val	Glu	Lys	Gly	Phe	Lys	Asp	Ala	Lys	
305					310					315					320	
Asn	Ile	Ser	Ser	Lys	Thr	Pro	Val	Leu	Lys	Ala	Val	Lys	Pro	Lys	Lys	
				325					330					335		
Glu	Val	Thr	Lys	Thr	Lys	Thr	Lys	Ser	Ile	Gln	Glu	Gln	Pro	Gln	Thr	
			340					345					350			
Lys	Glu	Gln	Trp	Trp	Thr	Lys	Thr	Asp	Gln	Phe	Ile	Gln	Ser	His	Phe	
		355					360					365				
Val	Ser	Ile	Leu	Ile	Val	Leu	Gly	Thr	Ile	Ala	Ser	Leu	Cys	Leu	Leu	
	370					375					380					
Ala	Gly	Ile	Val	Leu	Leu	Ile	Lys	Arg	Ser	Arg						
385					390					395						

<210> 67  
 <211> 984  
 <212> DNA  
 <213> Streptococcus agalactiae

<400> 67	
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aaaggacttg aatttgctaa caaatatggt atccaaaaag tttatgatca catagatcaa	180
gtatttgaag accctgaagt ggatatcatt tataatctcta ctccccacaa tactcacatc	240
tcattttttac gaaaggcttt agcaaattggt aagcacgttc tttgcgaaaa atctattact	300
ttaaatagta ctgagcttaa agaagccata gatttagccg aaactaacca tgttgtctta	360
gctgaagcca tgactatttt tcatatgcca atttaccgcc aattaaaac attagttgat	420
agtggaaaat taggaccggt aaaaatgatt caaatgaatt tcggaagtta taaagaatat	480
gatatgacta accgtttttt cagtcgtgac ctagcaggcg gtgctttgct ggacattggt	540
gtttatgcac tttcttgtat tcgctgggtt atgtcagaag cacctcacia cattacctct	600
caagttacat ttgcaccaac aggggttgat gaacaagttg gtatcctact aaccaacca	660

gcaaatagaga tggcgactgt cagccttagt ttacatgcaa aacaacctaa acgagcaact 720  
atcgcttacg ataaaggcta cattgaactt tttgaatatc cgcgaggaca aaaggcagtt 780  
attacttata ctgaggatgg gcatcaagat attatcgaag ctggcaaaac tgaaaatgct 840  
ctccaatatg aggtagctga tatggaagaa gccatttcag gaaaaactaa ccacatgtac 900  
ttaaactata ccaaagatgt tatggatatc atgacacagc tacgtcaaga atggggattt 960  
acctaccag aagaagaaaa atga 984

<210> 68  
<211> 327  
<212> PRT  
<213> Streptococcus agalactiae

<400> 68

Met	Thr	Glu	Lys	Tyr	Tyr	Asn	Trp	Ala	Thr	Leu	Gly	Thr	Gly	Val	Ile	
1				5					10					15		
Ala	Asn	Glu	Leu	Ala	Gln	Ala	Leu	Glu	Ala	Arg	Gly	Gln	Lys	Leu	Tyr	
			20					25					30			
Ser	Val	Ala	Asn	Arg	Thr	Tyr	Asp	Lys	Gly	Leu	Glu	Phe	Ala	Asn	Lys	
			35				40					45				
Tyr	Gly	Ile	Gln	Lys	Val	Tyr	Asp	His	Ile	Asp	Gln	Val	Phe	Glu	Asp	
	50					55				60						
Pro	Glu	Val	Asp	Ile	Ile	Tyr	Ile	Ser	Thr	Pro	His	Asn	Thr	His	Ile	
65					70					75					80	
Ser	Phe	Leu	Arg	Lys	Ala	Leu	Ala	Asn	Gly	Lys	His	Val	Leu	Cys	Glu	
				85				90						95		
Lys	Ser	Ile	Thr	Leu	Asn	Ser	Thr	Glu	Leu	Lys	Glu	Ala	Ile	Asp	Leu	
			100					105					110			
Ala	Glu	Thr	Asn	His	Val	Val	Leu	Ala	Glu	Ala	Met	Thr	Ile	Phe	His	
			115				120					125				
Met	Pro	Ile	Tyr	Arg	Gln	Leu	Lys	Thr	Leu	Val	Asp	Ser	Gly	Lys	Leu	
			130			135					140					
Gly	Pro	Leu	Lys	Met	Ile	Gln	Met	Asn	Phe	Gly	Ser	Tyr	Lys	Glu	Tyr	
145				150				155						160		
Asp	Met	Thr	Asn	Arg	Phe	Phe	Ser	Arg	Asp	Leu	Ala	Gly	Gly	Ala	Leu	
			165					170					175			
Leu	Asp	Ile	Gly	Val	Tyr	Ala	Leu	Ser	Cys	Ile	Arg	Trp	Phe	Met	Ser	
			180				185						190			

Glu Ala Pro His Asn Ile Thr Ser Gln Val Thr Phe Ala Pro Thr Gly  
 195 200 205  
 Val Asp Glu Gln Val Gly Ile Leu Leu Thr Asn Pro Ala Asn Glu Met  
 210 215 220  
 Ala Thr Val Ser Leu Ser Leu His Ala Lys Gln Pro Lys Arg Ala Thr  
 225 230 235 240  
 Ile Ala Tyr Asp Lys Gly Tyr Ile Glu Leu Phe Glu Tyr Pro Arg Gly  
 245 250 255  
 Gln Lys Ala Val Ile Thr Tyr Thr Glu Asp Gly His Gln Asp Ile Ile  
 260 265 270  
 Glu Ala Gly Lys Thr Glu Asn Ala Leu Gln Tyr Glu Val Ala Asp Met  
 275 280 285  
 Glu Glu Ala Ile Ser Gly Lys Thr Asn His Met Tyr Leu Asn Tyr Thr  
 290 295 300  
 Lys Asp Val Met Asp Ile Met Thr Gln Leu Arg Gln Glu Trp Gly Phe  
 305 310 315 320  
 Thr Tyr Pro Glu Glu Glu Lys  
 325

<210> 69  
 <211> 96  
 <212> DNA  
 <213> Streptococcus agalactiae

<400> 69  
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 aagagcttca tagaaaggag aggaaatatt tgtttt 96

<210> 70  
 <211> 32  
 <212> PRT  
 <213> Streptococcus agalactiae

<400> 70

Met Tyr Ser Pro Val Lys Ser Ser Lys Gly Lys Val Ile Leu Leu Lys  
 1 5 10 15  
 Ser Asp Phe Leu Lys Ser Phe Ile Glu Arg Arg Gly Asn Ile Cys Phe  
 20 25 30

<210> 71  
 <211> 429  
 <212> DNA  
 <213> Streptococcus agalactiae

<400> 71

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agcgataaag acttgaaaat tatggaacga atttctccat atttccgtcc agaatttcta      120
aatcgtttca atggtgttat tgaattctct cacctaagca aagatgactt aagcgaaatt      180
gtagatttga tgcttgatga agttaaccaa acaattggca aaaaaggaat tgaccttggtg      240
gtagatgaaa atgttaaata acacttaatt gaactgggtt atgacgaagc aatgggagta      300
cgtccattgc gccgtgtcat cgagcaagaa attcgagatc gcatcacaga ctactatctc      360
gatcatacag acgttaaaca cctaaaagct aatttgcaag atggccaaat cgtcatttct      420
gaaagataa                                     429

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<210> 72
<211> 142
<212> PRT
<213> Streptococcus agalactiae

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<400> 72
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Lys Tyr Cys Ile Ile Ala Thr Ser Asn Ala Gly Phe Gly Asn Glu Ala
1           5           10           15
Phe Thr Gly Asp Ser Asp Lys Asp Leu Lys Ile Met Glu Arg Ile Ser
          20           25           30
Pro Tyr Phe Arg Pro Glu Phe Leu Asn Arg Phe Asn Gly Val Ile Glu
          35           40           45
Phe Ser His Leu Ser Lys Asp Asp Leu Ser Glu Ile Val Asp Leu Met
          50           55           60
Leu Asp Glu Val Asn Gln Thr Ile Gly Lys Lys Gly Ile Asp Leu Val
65           70           75           80
Val Asp Glu Asn Val Lys Ser His Leu Ile Glu Leu Gly Tyr Asp Glu
          85           90           95
Ala Met Gly Val Arg Pro Leu Arg Arg Val Ile Glu Gln Glu Ile Arg
          100          105          110
Asp Arg Ile Thr Asp Tyr Tyr Leu Asp His Thr Asp Val Lys His Leu
          115          120          125
Lys Ala Asn Leu Gln Asp Gly Gln Ile Val Ile Ser Glu Arg
          130          135          140

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<210> 73
<211> 699
<212> DNA
<213> Streptococcus agalactiae

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<400> 73
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atgtcaatga atttttcatt tttaccacaa tattggctct attttaatta tgggtgatg      60
gtaaccatta tgatttcaac atgtgttggt ttttttggaa ctattatagg cgtgttaatt      120
gcttttagtaa agcgtactaa tttacatttt ctcacaatat tagctaattt ctatgtatgg      180
gtatttcgtg ggacaccgat ggtagttcaa attatgattg ctttcgcatg gatgcatttt      240
aacaatttac caacaattag ctttggtggt ttagatttag attttacacg acttttacct      300
ggatcatta tcatttcctt aaatagtggg gcctatatatt cggaattgt acgtgcaggg      360
attgaggctg taccatctgg acaaatagaa gcagcttact cgttggggat tcgacctaaa      420
aatacacttc gctatgttat cttaccccaa gcttttaaaa atattttacc tgctctaggg      480
aatgaattta ttacaattat taaagatagt gctctccttc aaactattgg tgcatggaa      540
ttatggaacg gagcacaatc agttgtaacg gctacttact caccagttgc accgttatta      600
tttgcagcat tttactattt aatgttgaca acgattctct cagctttggt aaaacaaatg      660
gagaaatatc ttgggaaagg ggtaaaaata gatgggtga      699

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<210> 74
<211> 232
<212> PRT
<213> Streptococcus agalactiae

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<400> 74

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Met Ser Met Asn Phe Ser Phe Leu Pro Gln Tyr Trp Ser Tyr Phe Asn
1          5          10          15

Tyr Gly Val Met Val Thr Ile Met Ile Ser Thr Cys Val Val Phe Phe
          20          25          30

Gly Thr Ile Ile Gly Val Leu Ile Ala Leu Val Lys Arg Thr Asn Leu
          35          40          45

His Phe Leu Thr Ile Leu Ala Asn Phe Tyr Val Trp Val Phe Arg Gly
          50          55          60

Thr Pro Met Val Val Gln Ile Met Ile Ala Phe Ala Trp Met His Phe
65          70          75          80

Asn Asn Leu Pro Thr Ile Ser Phe Gly Val Leu Asp Leu Asp Phe Thr
          85          90          95

Arg Leu Leu Pro Gly Ile Ile Ile Ile Ser Leu Asn Ser Gly Ala Tyr
          100          105          110

Ile Ser Glu Ile Val Arg Ala Gly Ile Glu Ala Val Pro Ser Gly Gln
          115          120          125

Ile Glu Ala Ala Tyr Ser Leu Gly Ile Arg Pro Lys Asn Thr Leu Arg

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130	135	140
Tyr Val Ile Leu Pro Gln Ala Phe Lys Asn Ile Leu Pro Ala Leu Gly		
145	150	155 160
Asn Glu Phe Ile Thr Ile Ile Lys Asp Ser Ala Leu Leu Gln Thr Ile		
	165	170 175
Gly Val Met Glu Leu Trp Asn Gly Ala Gln Ser Val Val Thr Ala Thr		
	180	185 190
Tyr Ser Pro Val Ala Pro Leu Leu Phe Ala Ala Phe Tyr Tyr Leu Met		
	195	200 205
Leu Thr Thr Ile Leu Ser Ala Leu Leu Lys Gln Met Glu Lys Tyr Leu		
	210	215 220
Gly Lys Gly Val Lys Ile Asp Gly		
225	230	

<210> 75  
 <211> 678  
 <212> DNA  
 <213> Streptococcus agalactiae

<400> 75  
 atgaaagacc tattacgaaa tagtctagag caaagtggaa atttaagttt tcaagatatg 60  
 attttacata ttcttgtagc agctttattg agtgtagtta tttatgtttc ctatgcttat 120  
 acgcatagtg gaactgccta tagtaaaaag tttaatgttt cattaatgac attgacggtc 180  
 ttgactgcaa cagtaatgac cgttattggg aataatgtag ccttgtcatt gggtatggtc 240  
 ggtgccttgt cagttgttcg ttttaggaca gccataaaag attcaagaga tacagtttat 300  
 attttttgga ccatagttgt tggatatctgt tgtgggtgtcg gtgactatgt ggtagctgca 360  
 ttaggaagta gcgttatctt tatcttatta tgggttatgg gacgtgttaa aaacgagaat 420  
 cgtatgttat tgattgtgaa gtgcgataga acactagaag ttgatttaga aggaattttc 480  
 ttccaatatt ttgacggaaa agctgttcag cgtgttaaaa attcaacaac taatactatt 540  
 gaaatgattt tcgaaatctc tagaaaagat tacgataagc aactccatgt agataatcag 600  
 ttaactgaaa aagtgtacca attgggaaat attgattatt tcaacattgt tagccaaagc 660  
 gacgaaatca atgggtag 678

<210> 76  
 <211> 225  
 <212> PRT  
 <213> Streptococcus agalactiae

<400> 76

Met	Lys	Asp	Leu	Leu	Arg	Asn	Ser	Leu	Glu	Gln	Ser	Gly	Asn	Leu	Ser			
1				5					10					15				
Phe	Gln	Asp	Met	Ile	Leu	His	Ile	Leu	Val	Ala	Ala	Leu	Leu	Ser	Val			
			20					25					30					
Val	Ile	Tyr	Val	Ser	Tyr	Ala	Tyr	Thr	His	Ser	Gly	Thr	Ala	Tyr	Ser			
		35					40					45						
Lys	Lys	Phe	Asn	Val	Ser	Leu	Met	Thr	Leu	Thr	Val	Leu	Thr	Ala	Thr			
	50					55					60							
Val	Met	Thr	Val	Ile	Gly	Asn	Asn	Val	Ala	Leu	Ser	Leu	Gly	Met	Val			
65					70					75					80			
Gly	Ala	Leu	Ser	Val	Val	Arg	Phe	Arg	Thr	Ala	Ile	Lys	Asp	Ser	Arg			
				85					90					95				
Asp	Thr	Val	Tyr	Ile	Phe	Trp	Thr	Ile	Val	Val	Gly	Ile	Cys	Cys	Gly			
			100					105					110					
Val	Gly	Asp	Tyr	Val	Val	Ala	Ala	Leu	Gly	Ser	Ser	Val	Ile	Phe	Ile			
		115					120					125						
Leu	Leu	Trp	Val	Met	Gly	Arg	Val	Lys	Asn	Glu	Asn	Arg	Met	Leu	Leu			
		130				135					140							
Ile	Val	Lys	Cys	Asp	Arg	Thr	Leu	Glu	Val	Asp	Leu	Glu	Gly	Ile	Phe			
145					150					155					160			
Phe	Gln	Tyr	Phe	Asp	Gly	Lys	Ala	Val	Gln	Arg	Val	Lys	Asn	Ser	Thr			
				165					170					175				
Thr	Asn	Thr	Ile	Glu	Met	Ile	Phe	Glu	Ile	Ser	Arg	Lys	Asp	Tyr	Asp			
			180					185					190					
Lys	Gln	Leu	His	Val	Asp	Asn	Gln	Leu	Thr	Glu	Lys	Val	Tyr	Gln	Leu			
		195					200					205						
Gly	Asn	Ile	Asp	Tyr	Phe	Asn	Ile	Val	Ser	Gln	Ser	Asp	Glu	Ile	Asn			
	210					215					220							

Gly  
225

<210> 77  
 <211> 499  
 <212> DNA  
 <213> Streptococcus agalactiae

<400> 77	
aaaaattcat ttttagattca ttttacgact atatactcag aagtaccaa cctaattcaa	60
ggtttgaaaa aagaaagaag gaagtcagta tgacaaacta taaaaacaac tttaaagatg	120
aggctatacg tgttgaagag acaacaaaag aatcatttta cgatgttgat attgccttgt	180

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tttcagctgg tggatctatt tcagcaaagt tcgctcctta tgcagtaaag tctggagcag      240
ttgtagtaga taacacgtca tatttttcgtc agaatcctga tgttccacta gttgttcctg      300
aagtaaatgc tcatgccatg attggtcata atggatatcat agcttggtccc aattgttcta      360
ctattcaaat gatgattgct ttagagccca ttcgtcaaaa atgggggata gagcgtgtta      420
tagtttccac ctatcaagct gtttcggggt caggtgcacg tgctgttgaa gaaactaagg      480
aacagttgag acaagttttt                                                    499

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<210> 78
<211> 165
<212> PRT
<213> Streptococcus agalactiae

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<400> 78

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```

Lys Phe Ile Leu Asp Ser Phe Tyr Asp Tyr Ile Leu Arg Ser Thr Lys
1           5           10           15

Pro Asn Pro Arg Phe Glu Lys Arg Lys Lys Glu Val Ser Met Thr Asn
          20           25           30

Tyr Lys Asn Asn Phe Lys Asp Glu Ala Ile Arg Val Glu Glu Thr Thr
          35           40           45

Lys Glu Ser Phe Tyr Asp Val Asp Ile Ala Leu Phe Ser Ala Gly Gly
50           55           60

Ser Ile Ser Ala Lys Phe Ala Pro Tyr Ala Val Lys Ser Gly Ala Val
65           70           75           80

Val Val Asp Asn Thr Ser Tyr Phe Arg Gln Asn Pro Asp Val Pro Leu
          85           90           95

Val Val Pro Glu Val Asn Ala His Ala Met Ile Gly His Asn Gly Ile
          100          105          110

Ile Ala Cys Pro Asn Cys Ser Thr Ile Gln Met Met Ile Ala Leu Glu
          115          120          125

Pro Ile Arg Gln Lys Trp Gly Ile Glu Arg Val Ile Val Ser Thr Tyr
          130          135          140

Gln Ala Val Ser Gly Ser Gly Ala Arg Ala Val Glu Glu Thr Lys Glu
145           150           155           160

Gln Leu Arg Gln Val
          165

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```

<210> 79
<211> 456
<212> DNA

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<213> Streptococcus agalactiae

<400> 79

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atgacaaatg aattgataat gcaagctttt gagtgggtatt tacctagtga tgggaatcac      60
tggaagaaat tagaggagtc tatatcagac cttaaaaaaac ttggaattag taaaatctgg    120
ttaccaccag catttaaggg aactagcagt gatgatgtag gatatgggtgt ttatgatctc    180
tttgatttag gagaatttga ccagaatgga acaattagaa caaaatatgg taggaaagaa    240
gagtatctaa agcttattaa gtcgttaaag gcaaattggca ttaaaccggt tgcagatatc    300
gttcttaacc ataaagccaa tggatgatcat aaagaaaaat ttcaagtcac caaagtcaat    360
cctgaaaatc gtcaagaagc attaagttaa ccctatgaga ttgaaggatg gacgggattt    420
gatttcccag gtagacaggg tgagtacaat gattttt                                456
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<210> 80

<211> 152

<212> PRT

<213> Streptococcus agalactiae

<400> 80

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Met Thr Asn Glu Leu Ile Met Gln Ala Phe Glu Trp Tyr Leu Pro Ser
1          5          10          15

Asp Gly Asn His Trp Lys Lys Leu Glu Glu Ser Ile Ser Asp Leu Lys
20          25          30

Lys Leu Gly Ile Ser Lys Ile Trp Leu Pro Pro Ala Phe Lys Gly Thr
35          40          45

Ser Ser Asp Asp Val Gly Tyr Gly Val Tyr Asp Leu Phe Asp Leu Gly
50          55          60

Glu Phe Asp Gln Asn Gly Thr Ile Arg Thr Lys Tyr Gly Arg Lys Glu
65          70          75          80

Glu Tyr Leu Lys Leu Ile Lys Ser Leu Lys Ala Asn Gly Ile Lys Pro
85          90          95

Phe Ala Asp Ile Val Leu Asn His Lys Ala Asn Gly Asp His Lys Glu
100         105         110

Lys Phe Gln Val Ile Lys Val Asn Pro Glu Asn Arg Gln Glu Ala Leu
115         120         125

Ser Glu Pro Tyr Glu Ile Glu Gly Trp Thr Gly Phe Asp Phe Pro Gly
130         135         140

Arg Gln Gly Glu Tyr Asn Asp Phe
145         150
```

<210> 81  
 <211> 516  
 <212> DNA  
 <213> Streptococcus agalactiae

<400> 81  
 atggagggttc ttatgaagaa agtgtagta agtagtcttt tggtttttagg gattacgata 60  
 acgttacaac cagtagttga ggctaagggg ccaaaagtag cttatacaca agagggaatg 120  
 actgctcttt cggacacaaa taaagataaa gtcactacta tttctattga cgagattcaa 180  
 aaaagcttag aaggtaagaa gccgattact gttagttttg atattgatga tacactgctt 240  
 ttcagtagtc aatattttca atatggtaaa gaatatgtaa ctcttggatc gtttgatttt 300  
 cttcataaac aaaaattctg ggatcttggt gcaaaacgag gagatcaaga ttccattccc 360  
 aaagaatatg ctaaaaaatt aattgctatg catcaaaaac gaggagataa aattgttttt 420  
 ataacaggta ggacaagagg gtcaatgtat aaggagggcg aggttgataa aacagctaaa 480  
 gccttagcta aagattttta atttgtacca tctgat 516

<210> 82  
 <211> 172  
 <212> PRT  
 <213> Streptococcus agalactiae

<400> 82  
 Met Glu Val Leu Met Lys Lys Val Leu Val Ser Ser Leu Leu Val Leu  
 1 5 10 15  
 Gly Ile Thr Ile Thr Leu Gln Pro Val Val Glu Ala Lys Gly Pro Lys  
 20 25 30  
 Val Ala Tyr Thr Gln Glu Gly Met Thr Ala Leu Ser Asp Thr Asn Lys  
 35 40 45  
 Asp Lys Val Thr Thr Ile Ser Ile Asp Glu Ile Gln Lys Ser Leu Glu  
 50 55 60  
 Gly Lys Lys Pro Ile Thr Val Ser Phe Asp Ile Asp Asp Thr Leu Leu  
 65 70 75 80  
 Phe Ser Ser Gln Tyr Phe Gln Tyr Gly Lys Glu Tyr Val Thr Pro Gly  
 85 90 95  
 Ser Phe Asp Phe Leu His Lys Gln Lys Phe Trp Asp Leu Val Ala Lys  
 100 105 110  
 Arg Gly Asp Gln Asp Ser Ile Pro Lys Glu Tyr Ala Lys Lys Leu Ile  
 115 120 125  
 Ala Met His Gln Lys Arg Gly Asp Lys Ile Val Phe Ile Thr Gly Arg

130		135		140
Thr Arg Gly Ser Met Tyr Lys Glu Gly Glu Val Asp Lys Thr Ala Lys				
145		150		155 160

Ala Leu Ala Lys Asp Phe Lys Phe Val Pro Ser Asp
165 170

<210> 83  
 <211> 516  
 <212> DNA  
 <213> Streptococcus agalactiae

<400> 83  
 atgcttaaaa gattatttac tgaagatggg gaattgacaa agattagtcg tcgtttcggt 60  
 tggatgtagg tggttatcta ttgtcttatt attgtcagga tgtgttttgg gcctcaaatt 120  
 atgattgagg gggatatcaac tccgaatggt cagcgcttcg gaagaattgt agctctttta 180  
 gtaccattta attcttttcg tagtttagat cagctaacta gcttttaaaga gattcttttg 240  
 gttattgggc aaaatgtagt gaatatttta ctgctgtttc ctctcattat agggttacta 300  
 tccctaaagc caagtttacg gaaatataaa agcggtatat tacttgcttt cttgatgtct 360  
 cttttcatag agtgtactca agttgtttta gatattttta tagatgctaa tcgggttttt 420  
 gaaatcgacg atctatggac aaatacctta ggcggtcctt tcgccctatg gagttatcga 480  
 aacataaaag gttggcttct aactattaga aaatga 516

<210> 84  
 <211> 171  
 <212> PRT  
 <213> Streptococcus agalactiae

<400> 84

Met Leu Lys Arg Leu Phe Thr Glu Asp Gly Glu Leu Thr Lys Ile Ser	
1 5 10 15	
Arg Arg Phe Val Trp Met Leu Val Val Ile Tyr Cys Leu Ile Ile Val	
20 25 30	
Arg Met Cys Phe Gly Pro Gln Ile Met Ile Glu Gly Val Ser Thr Pro	
35 40 45	
Asn Val Gln Arg Phe Gly Arg Ile Val Ala Leu Leu Val Pro Phe Asn	
50 55 60	
Ser Phe Arg Ser Leu Asp Gln Leu Thr Ser Phe Lys Glu Ile Leu Trp	
65 70 75 80	
Val Ile Gly Gln Asn Val Val Asn Ile Leu Leu Leu Phe Pro Leu Ile	
85 90 95	

Ile Gly Leu Leu Ser Leu Lys Pro Ser Leu Arg Lys Tyr Lys Ser Val  
100 105 110

Ile Leu Leu Ala Phe Leu Met Ser Leu Phe Ile Glu Cys Thr Gln Val  
115 120 125

Val Leu Asp Ile Leu Ile Asp Ala Asn Arg Val Phe Glu Ile Asp Asp  
130 135 140

Leu Trp Thr Asn Thr Leu Gly Gly Pro Phe Ala Leu Trp Ser Tyr Arg  
145 150 155 160

Asn Ile Lys Gly Trp Leu Leu Thr Ile Arg Lys  
165 170

<210> 85  
<211> 627  
<212> DNA  
<213> Streptococcus agalactiae

<400> 85  
atgaaaaagc ttacttttat ttgggattta gatgggacat taatagattc gtatgtacca 60  
attatggaag ctcttgaaga aacctatcgt cattttggct taatatattga taaagaatta 120  
atccatgaat atattttaca ggaatcagt gggcaattat tggtaaacct ttcagaggaa 180  
gagcaaatac ctcatgaaaa actgaaagca tattttacaa aagaacaaga aagtcgagat 240  
tctaaaatac atttaatgcc atatgcaaaa gagatttttag aatggaccaa agaacaagat 300  
attcccaatt ttatgtatac acataaagga gcaagtacgc attcagtggt ggaaaccttg 360  
cagatctctc attattttga tgaaatttta actggtgttt cgggattcga gcgaaaacca 420  
catccacaag ggattaatta tttagttaaa cgatattctt tagataaatc aatgacttat 480  
tacataggag atcgtccact agatttggag gttgctcaaa atgctggtat aaaatccata 540  
aacttaaggt tagagaattc caaagaaaac tataatattt caagtctcaa agatataata 600  
tcacttgatt tcactcgttt ggattaa 627

<210> 86  
<211> 208  
<212> PRT  
<213> Streptococcus agalactiae

<400> 86  
Met Lys Lys Leu Thr Phe Ile Trp Asp Leu Asp Gly Thr Leu Ile Asp  
1 5 10 15  
Ser Tyr Val Pro Ile Met Glu Ala Leu Glu Glu Thr Tyr Arg His Phe  
20 25 30

Gly	Leu	Ile	Phe	Asp	Lys	Glu	Leu	Ile	His	Glu	Tyr	Ile	Leu	Gln	Glu			
	35						40					45						
Ser	Val	Gly	Gln	Leu	Leu	Val	Asn	Leu	Ser	Glu	Glu	Glu	Gln	Ile	Pro			
	50					55					60							
His	Glu	Lys	Leu	Lys	Ala	Tyr	Phe	Thr	Lys	Glu	Gln	Glu	Ser	Arg	Asp			
65					70					75					80			
Ser	Lys	Ile	His	Leu	Met	Pro	Tyr	Ala	Lys	Glu	Ile	Leu	Glu	Trp	Thr			
				85					90					95				
Lys	Glu	Gln	Asp	Ile	Pro	Asn	Phe	Met	Tyr	Thr	His	Lys	Gly	Ala	Ser			
			100					105					110					
Thr	His	Ser	Val	Leu	Glu	Thr	Leu	Gln	Ile	Ser	His	Tyr	Phe	Asp	Glu			
			115				120						125					
Ile	Leu	Thr	Gly	Val	Ser	Gly	Phe	Glu	Arg	Lys	Pro	His	Pro	Gln	Gly			
	130					135					140							
Ile	Asn	Tyr	Leu	Val	Lys	Arg	Tyr	Ser	Leu	Asp	Lys	Ser	Met	Thr	Tyr			
145					150					155					160			
Tyr	Ile	Gly	Asp	Arg	Pro	Leu	Asp	Leu	Glu	Val	Ala	Gln	Asn	Ala	Gly			
			165						170					175				
Ile	Lys	Ser	Ile	Asn	Leu	Arg	Leu	Glu	Asn	Ser	Lys	Glu	Asn	Tyr	Asn			
			180					185					190					
Ile	Ser	Ser	Leu	Lys	Asp	Ile	Ile	Ser	Leu	Asp	Phe	Thr	Arg	Leu	Asp			
			195				200					205						

<210> 87  
 <211> 1356  
 <212> DNA  
 <213> Streptococcus agalactiae

<400> 87	
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atcgggtggcg gaatctttga tttaatgcaa aatatgagtt ccagagccgg tttggtacca	120
atgcttattg cttgggtaat tactgctatc gggatgggaa ctttcgtttt aagttttcaa	180
aatttatctg aaaaaaggcc ggacctaaca gctggaatct ttagttacgc taaagagggg	240
tttggaact ttatgggatt taactctgca tgggggttatt ggttatcagc ttggcttgga	300
aatgttgcct acgctgcact cttattcagt tcaactcggt atttctttaa attctttggt	360
aatggaaata atatcatctc aattattgga gcaagtatag ttatttggt tgtccatttc	420
ttaattttaa gaggtgttaa tacagctgca ttattaata ccgtagttac ctttgcaaaa	480
ttagtacctg ttattatttt cttaatttca gcgttattag ctttcaaatt taacattttt	540

agtcttgata	tctggggaaa	tggattacat	caatcaattt	tcaaccaagt	caattcaact	600
atgaaaaccg	ctgtttgggt	at ttatttgg	attgagggcg	cgtttgtctt	ctcaggtcgt	660
gctaaaaaac	actctgatat	tggtaaagca	agtatcctag	cattattcac	tatgatttca	720
ctttatgtat	tgatttctgt	tttatcactt	ggtatcatgt	cacgtccaga	acttgcaaac	780
ttaaaaacac	cagctatggc	ttacgttcta	gaaaaagctg	ttggtcactg	gggtgctatc	840
ttagttaacc	ttggtgttat	catttcagta	tttggcgcta	ttcttgcttg	gactttat tt	900
gcagcagaat	taccatatca	agctgctaaa	gaaggtgctt	ttcctaaatt	ttttgcaaaa	960
gaaaataaaa	acaaagctcc	aatcaactca	ctcttagtca	ctaattctttg	tgtacaagca	1020
ttctttaatca	cg ttcttatt	cacacaaagt	gcttatcg tt	ttggtttctgc	attagcatca	1080
tctgctatct	taattcctta	tgctttttaca	gcactatatc	aattacaatt	cacactccgt	1140
gaggataagt	caactccagg	acatcaaaaag	aatttaatta	tcggtatcct	cgctacaatc	1200
tatgctgttt	accttatcta	cgctgggtgg	tttgattact	tacttttgac	aatgattgct	1260
tatactctag	glatgattct	ctatat taaa	atgagaaaag	atgacaagct	tggcgtaatc	1320
atggtcatag	ctgtttccag	tgtgaaattg	ttatcc			1356

<210>	88
<211>	452
<212>	PRT
<213>	Str
<400>	88

Met 1	Glu	Lys	Glu	Lys 5	Lys	Leu	Gly	Leu	Leu 10	Pro	Leu	Thr	Met	Leu 15	Val
Ile	Gly	Ser	Leu 20	Ile	Gly	Gly	Gly	Ile 25	Phe	Asp	Leu	Met	Gln 30	Asn	Met
Ser	Ser	Arg 35	Ala	Gly	Leu	Val	Pro 40	Met	Leu	Ile	Ala	Trp 45	Val	Ile	Thr
Ala 50	Ile	Gly	Met	Gly	Thr	Phe 55	Val	Leu	Ser	Phe	Gln 60	Asn	Leu	Ser	Glu
Lys 65	Arg	Pro	Asp	Leu	Thr 70	Ala	Gly	Ile	Phe	Ser 75	Tyr	Ala	Lys	Glu	Gly 80
Phe	Gly	Asn	Phe	Met 85	Gly	Phe	Asn	Ser 90	Ala	Trp	Gly	Tyr	Trp	Leu 95	Ser
Ala	Trp	Leu	Gly 100	Asn	Val	Ala	Tyr	Ala 105	Ala	Leu	Leu	Phe	Ser 110	Ser	Leu

Gly	Tyr	Phe	Phe	Lys	Phe	Phe	Gly	Asn	Gly	Asn	Asn	Ile	Ile	Ser	Ile	115	120	125	
Ile	Gly	Ala	Ser	Ile	Val	Ile	Trp	Val	Val	His	Phe	Leu	Ile	Leu	Arg	130	135	140	
Gly	Val	Asn	Thr	Ala	Ala	Phe	Ile	Asn	Thr	Val	Val	Thr	Phe	Ala	Lys	145	150	155	160
Leu	Val	Pro	Val	Ile	Ile	Phe	Leu	Ile	Ser	Ala	Leu	Leu	Ala	Phe	Lys	165	170	175	
Phe	Asn	Ile	Phe	Ser	Leu	Asp	Ile	Trp	Gly	Asn	Gly	Leu	His	Gln	Ser	180	185	190	
Ile	Phe	Asn	Gln	Val	Asn	Ser	Thr	Met	Lys	Thr	Ala	Val	Trp	Val	Phe	195	200	205	
Ile	Gly	Ile	Glu	Gly	Ala	Val	Val	Phe	Ser	Gly	Arg	Ala	Lys	Lys	His	210	215	220	
Ser	Asp	Ile	Gly	Lys	Ala	Ser	Ile	Leu	Ala	Leu	Phe	Thr	Met	Ile	Ser	225	230	235	240
Leu	Tyr	Val	Leu	Ile	Ser	Val	Leu	Ser	Leu	Gly	Ile	Met	Ser	Arg	Pro	245	250	255	
Glu	Leu	Ala	Asn	Leu	Lys	Thr	Pro	Ala	Met	Ala	Tyr	Val	Leu	Glu	Lys	260	265	270	
Ala	Val	Gly	His	Trp	Gly	Ala	Ile	Leu	Val	Asn	Leu	Gly	Val	Ile	Ile	275	280	285	
Ser	Val	Phe	Gly	Ala	Ile	Leu	Ala	Trp	Thr	Leu	Phe	Ala	Ala	Glu	Leu	290	295	300	
Pro	Tyr	Gln	Ala	Ala	Lys	Glu	Gly	Ala	Phe	Pro	Lys	Phe	Phe	Ala	Lys	305	310	315	320
Glu	Asn	Lys	Asn	Lys	Ala	Pro	Ile	Asn	Ser	Leu	Leu	Val	Thr	Asn	Leu	325	330	335	
Cys	Val	Gln	Ala	Phe	Leu	Ile	Thr	Phe	Leu	Phe	Thr	Gln	Ser	Ala	Tyr	340	345	350	
Arg	Phe	Gly	Phe	Ala	Leu	Ala	Ser	Ser	Ala	Ile	Leu	Ile	Pro	Tyr	Ala	355	360	365	
Phe	Thr	Ala	Leu	Tyr	Gln	Leu	Gln	Phe	Thr	Leu	Arg	Glu	Asp	Lys	Ser	370	375	380	
Thr	Pro	Gly	His	Gln	Lys	Asn	Leu	Ile	Ile	Gly	Ile	Leu	Ala	Thr	Ile	385	390	395	400
Tyr	Ala	Val	Tyr	Leu	Ile	Tyr	Ala	Gly	Gly	Phe	Asp	Tyr	Leu	Leu	Leu	405	410	415	

Thr Met Ile Ala Tyr Thr Leu Gly Met Ile Leu Tyr Ile Lys Met Arg  
420 425 430

Lys Asp Asp Lys Leu Gly Val Ile Met Val Ile Ala Val Ser Ser Val  
435 440 445

Lys Leu Leu Ser  
450

<210> 89  
<211> 1134  
<212> DNA  
<213> Streptococcus agalactiae

<400> 89  
atgaaatttg aaaaacggca ggtctattat gttgtcataa catttgctat ttgctatgct 60  
atacaggctt attggggagc tgtttctaata attttaacta cgcttcataa ggcaatattt 120  
ccttttttga tgggagctgg aattgcctat attattaata ttgtaatgtc agtctatgag 180  
cgattatata taaagctttt taaaggatct agactattaa tggcaatcaa gcgtagtggt 240  
tctatgattt tctcctatgc aacttttatt ggtttaattg tctggctatt ttcaattgtc 300  
attccagatt tgatttctag tttgagttct ttattgggta ttgataccgg agcacttgct 360  
aaattgggta ataactctcaa tgaaaataaa caaatttctg aggcctttaa ttatatggga 420  
acagataaag acttagtttc tactttaagt ggttatagcc agcagatttt gaagcaagtt 480  
ttatctgttt taacaaattt actaacctca gtttcctcta ttgcggcaac acttctgaat 540  
gtttttgtta gttttatttt ttcaatttac gttttggcaa acaaggagca gttgggacgt 600  
caatttaatt tggttaattga tacctattta ggttcaacag gcaaaacatt ccattacgtt 660  
cgtcatatcc ttcacacacg tttccatggg ttttttgtaa gccaaacttt agaagctatg 720  
attttaggaa gtttgacggg tattgggatg ttgatcttcc aatttcctta tgctttaaca 780  
gttgggggtt tagttgcttt tacagctcta ataccgggtg tgggagccta cattgggtgtt 840  
acaatcgggt tcatcttaat tgctactgaa tcgcttactg aagcattctt gtttggttctt 900  
ttcttgatcc ttttacaaca atttgaggga aatgtcattt atccgaaagt tgcgggtgga 960  
tcgattggac tgccttctat gtgggtttta atggctatta ctatcggagg tgctttatgg 1020  
gggatcttag gcatgttact tgctgttcct gttgcagcta ctatctatca gattgtaaaa 1080  
gatcatatta tcaagcgaca aacgcttaga aatcgtgcac gaacctatcg ttaa 1134

<210> 90  
<211> 377

<212> PRT

<213> Streptococcus agalactiae

<400> 90

Met Lys Phe Glu Lys Arg Gln Val Tyr Tyr Val Val Ile Thr Phe Ala  
1 5 10 15

Ile Cys Tyr Ala Ile Gln Ala Tyr Trp Gly Ala Val Ser Asn Ile Leu  
20 25 30

Thr Thr Leu His Lys Ala Ile Phe Pro Phe Leu Met Gly Ala Gly Ile  
35 40 45

Ala Tyr Ile Ile Asn Ile Val Met Ser Val Tyr Glu Arg Leu Tyr Ile  
50 55 60

Lys Leu Phe Lys Gly Ser Arg Leu Leu Met Ala Ile Lys Arg Ser Val  
65 70 75 80

Ser Met Ile Leu Ser Tyr Ala Thr Phe Ile Gly Leu Ile Val Trp Leu  
85 90 95

Phe Ser Ile Val Ile Pro Asp Leu Ile Ser Ser Leu Ser Ser Leu Leu  
100 105 110

Val Ile Asp Thr Gly Ala Leu Ala Lys Leu Val Asn Asn Leu Asn Glu  
115 120 125

Asn Lys Gln Ile Ser Glu Ala Leu Asn Tyr Met Gly Thr Asp Lys Asp  
130 135 140

Leu Val Ser Thr Leu Ser Gly Tyr Ser Gln Gln Ile Leu Lys Gln Val  
145 150 155 160

Leu Ser Val Leu Thr Asn Leu Leu Thr Ser Val Ser Ser Ile Ala Ala  
165 170 175

Thr Leu Leu Asn Val Phe Val Ser Phe Ile Phe Ser Ile Tyr Val Leu  
180 185 190

Ala Asn Lys Glu Gln Leu Gly Arg Gln Phe Asn Leu Leu Ile Asp Thr  
195 200 205

Tyr Leu Gly Ser Thr Gly Lys Thr Phe His Tyr Val Arg His Ile Leu  
210 215 220

His Gln Arg Phe His Gly Phe Phe Val Ser Gln Thr Leu Glu Ala Met  
225 230 235 240

Ile Leu Gly Ser Leu Thr Val Ile Gly Met Leu Ile Phe Gln Phe Pro  
245 250 255

Tyr Ala Leu Thr Val Gly Val Leu Val Ala Phe Thr Ala Leu Ile Pro  
260 265 270

Val Val Gly Ala Tyr Ile Gly Val Thr Ile Gly Phe Ile Leu Ile Ala

275		280		285
Thr Glu Ser Leu Thr Glu Ala Phe Leu Phe Val Leu Phe Leu Ile Leu				
290		295		300
Leu Gln Gln Phe Glu Gly Asn Val Ile Tyr Pro Lys Val Val Gly Gly				
305		310		320
Ser Ile Gly Leu Pro Ser Met Trp Val Leu Met Ala Ile Thr Ile Gly				
	325		330	335
Gly Ala Leu Trp Gly Ile Leu Gly Met Leu Leu Ala Val Pro Val Ala				
	340		345	350
Ala Thr Ile Tyr Gln Ile Val Lys Asp His Ile Ile Lys Arg Gln Thr				
	355		360	365
Leu Arg Asn Arg Ala Arg Thr Tyr Arg				
370		375		

<210> 91  
 <211> 1386  
 <212> DNA  
 <213> Streptococcus agalactiae

<400> 91  
 gtgattacaa ttaaaaagga atctgttatc aaactattga agtatgcttt tggcattata 60  
 atgggattta ttatcttagc tattgtaata ggtgggctcc tatttgcata ctacgtagt 120  
 cgttctccga aattaaccga tcaagcttta aaatccgtta actctagttt ggtttatgat 180  
 ggtaataata aacttattgc cgatttaggc tcagaaaagc gtgaaagtgt tagtgcggat 240  
 agcattccac taaatttggt taacgctatc acttctatag aagataaacg tttctttaaa 300  
 catagaggtg tcgatattta tcgtatttta ggtgcagctt ggcataacct tgtagtagt 360  
 aatacgcaag gtgggtcaac cttgatcaa cagttgatta aactggctta cttttctacc 420  
 aataaatctg accaaacggt aaaacgtaaa tcacaggaag tttggcttgc gcttcaaagt 480  
 gagcgtaaata acaccaaaga agaaattctt actttctata ttaataaagt ttatatggga 540  
 aatgggaatt atgggtatgag aacaacagct aaatcatact ttggtaaaga cctaaaggaa 600  
 ttatctattg cacaacttgc tttgctcgct ggtattcctc aagcacctac acaatatgac 660  
 cttataaaa acccagaatc tgctcaaaca agacgtaata ccgttcttca gcagatgtat 720  
 caagataaaa acatttctaa aaaggaatac gaccaagctg ttgcaactcc agtaactgat 780  
 ggcttaaaag aattaaagca aaaatctact tatccaaaat atatggataa ctacttaaaa 840  
 caagttatta gtgaagttaa acaaaaaact ggtaaagata tctttactgc tgggctaaaa 900  
 gtgtatacta atatcaacac tgatgcacaa aaacaactat atgacatcta caacagtgat 960

acttacatcg cttatccaaa caatgaatta caaatagcat ctacccatcat ggatgcgact 1020  
 aatggtaaag tcattgcaca attaggcggg cgtcatcaga atgaaaatat ttcatttggg 1080  
 acaaatcaat ctgtcttaac agaccgcgat tgggggttcta caatgaaacc tatctcagct 1140  
 tatgcacctg ctattgatag tgggtgtctat aattcaacag gtcaatcatt aaacgactca 1200  
 gtttactact ggcttgggtac ttctactcaa ctatatgact gggatcgtca atatatgggt 1260  
 tggatgagta tgcagaccgc tattcaacaa tcacgtaacg tccttgctgt cagagcactt 1320  
 gaagccgctg gattagacga agcaaaatct ttccttgaaa aattaggcat atactatcca 1380  
 gaaatg 1386

<210> 92  
 <211> 462  
 <212> PRT  
 <213> Streptococcus agalactiae

<400> 92

Met	Ile	Thr	Ile	Lys	Lys	Glu	Ser	Val	Ile	Lys	Leu	Leu	Lys	Tyr	Ala	1	5	10	15
Phe	Gly	Ile	Ile	Met	Gly	Phe	Ile	Ile	Leu	Ala	Ile	Val	Ile	Gly	Gly	20	25	30	
Leu	Leu	Phe	Ala	Tyr	Tyr	Val	Ser	Arg	Ser	Pro	Lys	Leu	Thr	Asp	Gln	35	40	45	
Ala	Leu	Lys	Ser	Val	Asn	Ser	Ser	Leu	Val	Tyr	Asp	Gly	Asn	Asn	Lys	50	55	60	
Leu	Ile	Ala	Asp	Leu	Gly	Ser	Glu	Lys	Arg	Glu	Ser	Val	Ser	Ala	Asp	65	70	75	80
Ser	Ile	Pro	Leu	Asn	Leu	Val	Asn	Ala	Ile	Thr	Ser	Ile	Glu	Asp	Lys	85	90	95	
Arg	Phe	Phe	Lys	His	Arg	Gly	Val	Asp	Ile	Tyr	Arg	Ile	Leu	Gly	Ala	100	105	110	
Ala	Trp	His	Asn	Leu	Val	Ser	Ser	Asn	Thr	Gln	Gly	Gly	Ser	Thr	Leu	115	120	125	
Asp	Gln	Gln	Leu	Ile	Lys	Leu	Ala	Tyr	Phe	Ser	Thr	Asn	Lys	Ser	Asp	130	135	140	
Gln	Thr	Leu	Lys	Arg	Lys	Ser	Gln	Glu	Val	Trp	Leu	Ala	Leu	Gln	Met	145	150	155	160
Glu	Arg	Lys	Tyr	Thr	Lys	Glu	Glu	Ile	Leu	Thr	Phe	Tyr	Ile	Asn	Lys	165	170	175	

Val	Tyr	Met	Gly	Asn	Gly	Asn	Tyr	Gly	Met	Arg	Thr	Thr	Ala	Lys	Ser	180	185	190	
Tyr	Phe	Gly	Lys	Asp	Leu	Lys	Glu	Leu	Ser	Ile	Ala	Gln	Leu	Ala	Leu	195	200	205	
Leu	Ala	Gly	Ile	Pro	Gln	Ala	Pro	Thr	Gln	Tyr	Asp	Pro	Tyr	Lys	Asn	210	215	220	
Pro	Glu	Ser	Ala	Gln	Thr	Arg	Arg	Asn	Thr	Val	Leu	Gln	Gln	Met	Tyr	225	230	235	240
Gln	Asp	Lys	Asn	Ile	Ser	Lys	Lys	Glu	Tyr	Asp	Gln	Ala	Val	Ala	Thr	245	250	255	
Pro	Val	Thr	Asp	Gly	Leu	Lys	Glu	Leu	Lys	Gln	Lys	Ser	Thr	Tyr	Pro	260	265	270	
Lys	Tyr	Met	Asp	Asn	Tyr	Leu	Lys	Gln	Val	Ile	Ser	Glu	Val	Lys	Gln	275	280	285	
Lys	Thr	Gly	Lys	Asp	Ile	Phe	Thr	Ala	Gly	Leu	Lys	Val	Tyr	Thr	Asn	290	295	300	
Ile	Asn	Thr	Asp	Ala	Gln	Lys	Gln	Leu	Tyr	Asp	Ile	Tyr	Asn	Ser	Asp	305	310	315	320
Thr	Tyr	Ile	Ala	Tyr	Pro	Asn	Asn	Glu	Leu	Gln	Ile	Ala	Ser	Thr	Ile	325	330	335	
Met	Asp	Ala	Thr	Asn	Gly	Lys	Val	Ile	Ala	Gln	Leu	Gly	Gly	Arg	His	340	345	350	
Gln	Asn	Glu	Asn	Ile	Ser	Phe	Gly	Thr	Asn	Gln	Ser	Val	Leu	Thr	Asp	355	360	365	
Arg	Asp	Trp	Gly	Ser	Thr	Met	Lys	Pro	Ile	Ser	Ala	Tyr	Ala	Pro	Ala	370	375	380	
Ile	Asp	Ser	Gly	Val	Tyr	Asn	Ser	Thr	Gly	Gln	Ser	Leu	Asn	Asp	Ser	385	390	395	400
Val	Tyr	Tyr	Trp	Pro	Gly	Thr	Ser	Thr	Gln	Leu	Tyr	Asp	Trp	Asp	Arg	405	410	415	
Gln	Tyr	Met	Gly	Trp	Met	Ser	Met	Gln	Thr	Ala	Ile	Gln	Gln	Ser	Arg	420	425	430	
Asn	Val	Pro	Ala	Val	Arg	Ala	Leu	Glu	Ala	Ala	Gly	Leu	Asp	Glu	Ala	435	440	445	
Lys	Ser	Phe	Leu	Glu	Lys	Leu	Gly	Ile	Tyr	Tyr	Pro	Glu	Met			450	455	460	

<210> 93  
<211> 336

<212> DNA  
<213> Streptococcus agalactiae

<400> 93  
atggctaatag tatatgattt agcaaatgaa ttagaacgtg ctgttcgtgc ttaccagaa 60  
taccaagcag ttttaactgc aaaagcagct attgaaaatg atgcggatgc acaagtgctt 120  
tggcaagact ttttggctac ccaatcaaaa gttcaagaaa tgatgcaatc tggccaaatg 180  
ccaagtcaag aagaacaaga tgaaatgtct aaacttgggg aaaaaattga atccaatgac 240  
cttttaaaag tttattttga ccaacaacaa cggttgtctg tctatatgtc tgatatcgaa 300  
aaaattgtct ttgcacccat gcaggacttg atgtaa 336

<210> 94  
<211> 111  
<212> PRT  
<213> Streptococcus agalactiae

<400> 94  
Met Ala Asn Val Tyr Asp Leu Ala Asn Glu Leu Glu Arg Ala Val Arg  
1 5 10 15  
Ala Leu Pro Glu Tyr Gln Ala Val Leu Thr Ala Lys Ala Ala Ile Glu  
20 25 30  
Asn Asp Ala Asp Ala Gln Val Leu Trp Gln Asp Phe Leu Ala Thr Gln  
35 40 45  
Ser Lys Val Gln Glu Met Met Gln Ser Gly Gln Met Pro Ser Gln Glu  
50 55 60  
Glu Gln Asp Glu Met Ser Lys Leu Gly Glu Lys Ile Glu Ser Asn Asp  
65 70 75 80  
Leu Leu Lys Val Tyr Phe Asp Gln Gln Gln Arg Leu Ser Val Tyr Met  
85 90 95  
Ser Asp Ile Glu Lys Ile Val Phe Ala Pro Met Gln Asp Leu Met  
100 105 110

<210> 95  
<211> 230  
<212> DNA  
<213> Streptococcus agalactiae

<400> 95  
atggcagaaa tcacagctaa acttgtaaaa gaattgcgtg aaaaatcagg tgcaggcgtt 60  
atggacgcta aaaaagcatt agtagaaact gatggtgacc ttgataaagc gattgaatta 120  
cttcgcgaaa aaggtatggc taaagcagct aaaaagcag accgtgttgc tgctgaaggt 180

ttaacaggtg tttatgttga tggtaacggt gcagcagtta ttgaagttaa

230

<210> 96  
<211> 76  
<212> PRT  
<213> Streptococcus agalactiae

<400> 96

Met Ala Glu Ile Thr Ala Lys Leu Val Lys Glu Leu Arg Glu Lys Ser  
1 5 10 15

Gly Ala Gly Val Met Asp Ala Lys Lys Ala Leu Val Glu Thr Asp Gly  
20 25 30

Asp Leu Asp Lys Ala Ile Glu Leu Leu Arg Glu Lys Gly Met Ala Lys  
35 40 45

Ala Ala Lys Lys Ala Asp Arg Val Ala Ala Glu Gly Leu Thr Gly Val  
50 55 60

Tyr Val Asp Gly Asn Val Ala Ala Val Ile Glu Val  
65 70 75

<210> 97  
<211> 134  
<212> DNA  
<213> Streptococcus agalactiae

<400> 97

atgataaaaa acctgttatt aacaggtttt ttatcattta atgacggaaa actggacaca 60

aattattttt cttgtataat taaatatatt atttcttate aggagggttat gatgacatta 120

gagaaacgat ttaa 134

<210> 98  
<211> 44  
<212> PRT  
<213> Streptococcus agalactiae

<400> 98

Met Ile Lys Asn Leu Leu Leu Thr Gly Phe Leu Ser Phe Asn Asp Gly  
1 5 10 15

Lys Leu Asp Thr Asn Tyr Phe Ser Cys Ile Ile Lys Tyr Ile Ile Ser  
20 25 30

Tyr Gln Glu Val Met Met Thr Leu Glu Lys Arg Phe  
35 40

<210> 99  
<211> 94  
<212> DNA

<213> Streptococcus agalactiae

<400> 99

atgaaaaata ataaaaataa tggttttctg aaaaattcct ttatttacat attattgatt 60

attgcggtta ttacaacctt tcaatactat ttaa 94

<210> 100

<211> 31

<212> PRT

<213> Streptococcus agalactiae

<400> 100

Met Lys Asn Asn Lys Asn Asn Gly Phe Leu Lys Asn Ser Phe Ile Tyr  
1 5 10 15

Ile Leu Leu Ile Ile Ala Val Ile Thr Thr Phe Gln Tyr Tyr Leu  
20 25 30

<210> 101

<211> 158

<212> DNA

<213> Streptococcus agalactiae

<400> 101

atgtagata ttatcttata cggaatttcg caaggattac tttggtcaat tatggcaatt 60

ggcgtgttta tcacttttcg tatcttagac atagccgata tctctgcaga aggggctttc 120

cctatggggg ctgcagtttg cgccttatgt atcgtaa 158

<210> 102

<211> 52

<212> PRT

<213> Streptococcus agalactiae

<400> 102

Met Leu Asp Ile Ile Leu Ser Gly Ile Ser Gln Gly Leu Leu Trp Ser  
1 5 10 15

Ile Met Ala Ile Gly Val Phe Ile Thr Phe Arg Ile Leu Asp Ile Ala  
20 25 30

Asp Leu Ser Ala Glu Gly Ala Phe Pro Met Gly Ala Ala Val Cys Ala  
35 40 45

Leu Cys Ile Val  
50

<210> 103

<211> 161

<212> DNA

<213> Streptococcus agalactiae

<400> 103  
atggaaatgc ctaaaagaaa tgaattactc aataaagaaa ttaaaatgag tattgataaa 60  
cttagatata aagaaccaga gagtgaacat gacaagcgac ctacttttta tttggtagta 120  
cttatacttg ttactgtagc agttatattg tcggtattta a 161

<210> 104  
<211> 53  
<212> PRT  
<213> Streptococcus agalactiae

<400> 104  
Met Glu Met Pro Lys Arg Asn Glu Leu Leu Asn Lys Glu Ile Lys Met  
1 5 10 15  
Ser Ile Asp Lys Leu Arg Tyr Lys Glu Pro Glu Ser Glu His Asp Lys  
20 25 30  
Arg Pro Thr Phe Tyr Leu Val Val Leu Ile Leu Val Thr Val Ala Val  
35 40 45  
Ile Leu Ser Leu Phe  
50

<210> 105  
<211> 179  
<212> DNA  
<213> Streptococcus agalactiae

<400> 105  
gtggtaagta aattgagttt aacaacgatt tttgcattgc tattttcatc aatgctaatt 60  
tacgcaacac ctcttatctt tacaagtatt gggggaacct tctctgaacg tggtaggtatc 120  
gtcaacggtg gtttagaagg aattatggta attggagctt tctcaggcgt tgtatttaa 179

<210> 106  
<211> 59  
<212> PRT  
<213> Streptococcus agalactiae

<400> 106  
Met Val Ser Lys Leu Ser Leu Thr Thr Ile Phe Ala Leu Leu Phe Ser  
1 5 10 15  
Ser Met Leu Ile Tyr Ala Thr Pro Leu Ile Phe Thr Ser Ile Gly Gly  
20 25 30  
Thr Phe Ser Glu Arg Gly Gly Ile Val Asn Val Gly Leu Glu Gly Ile  
35 40 45

Met Val Ile Gly Ala Phe Ser Gly Val Val Phe  
50 55

<210> 107  
<211> 558  
<212> DNA  
<213> Streptococcus agalactiae

<400> 107  
atgagaatta ttgcaataac tgaaaagggt ataaaagaac tgttttcgtga taaaagaaca 60  
cttgctatga tgttttttagc acctatttta attatgtttt tgatgaatgt tatgttttct 120  
gcgaatagta atacaaaagt taagattgga actattaacg ttaacacgaa ggtcgtttca 180  
aatttagata atattaagca tattcaagtg agatcattta aatttaactc atctgctaaa 240  
aaagcactca aatcaaataa aattgatgct cttatttcgg aggacaataa atcttatact 300  
gtcttctatg cgaatacaga ttcttcaaag acgactttaa caagacaagc ttttaaaacc 360  
gctgttaata caatgaacag taaggaactg atttcgcaag ttaaaatttt agctaataag 420  
aatccgaaac tagcacaatc cttacaaact cgctccaaat atatcaaaga aaaatataat 480  
tacggaaata aaaatacagg cttttttgca aaaatgatac caatactaataa gggatttatg 540  
gtcttcttct tggttttt 558

<210> 108  
<211> 186  
<212> PRT  
<213> Streptococcus agalactiae

<400> 108

Met Arg Ile Ile Ala Ile Thr Glu Lys Val Ile Lys Glu Leu Phe Arg  
1 5 10 15  
Asp Lys Arg Thr Leu Ala Met Met Phe Leu Ala Pro Ile Leu Ile Met  
20 25 30  
Phe Leu Met Asn Val Met Phe Ser Ala Asn Ser Asn Thr Lys Val Lys  
35 40 45  
Ile Gly Thr Ile Asn Val Asn Thr Lys Val Val Ser Asn Leu Asp Asn  
50 55 60  
Ile Lys His Ile Gln Val Arg Ser Phe Lys Phe Asn Ser Ser Ala Lys  
65 70 75 80  
Lys Ala Leu Lys Ser Asn Lys Ile Asp Ala Leu Ile Ser Glu Asp Asn  
85 90 95  
Lys Ser Tyr Thr Val Phe Tyr Ala Asn Thr Asp Ser Ser Lys Thr Thr  
100 105 110

Leu Thr Arg Gln Ala Phe Lys Thr Ala Val Asn Thr Met Asn Ser Lys  
115 120 125

Glu Leu Ile Ser Gln Val Lys Ile Leu Ala Asn Lys Asn Pro Lys Leu  
130 135 140

Ala Gln Ser Leu Gln Thr Arg Ser Lys Tyr Ile Lys Glu Lys Tyr Asn  
145 150 155 160

Tyr Gly Asn Lys Asn Thr Gly Phe Phe Ala Lys Met Ile Pro Ile Leu  
165 170 175

Met Gly Phe Met Val Phe Phe Leu Val Phe  
180 185

<210> 109  
<211> 100  
<212> DNA  
<213> Streptococcus agalactiae

<400> 109  
gtgattatcg ttatgagtaa acatcaagaa attttggagt acctagaaaa tttagctggt 60  
ggtaagaggg ttagtgtacg cagtatttca aatcatttaa 100

<210> 110  
<211> 33  
<212> PRT  
<213> Streptococcus agalactiae

<400> 110

Met Ile Ile Val Met Ser Lys His Gln Glu Ile Leu Glu Tyr Leu Glu  
1 5 10 15

Asn Leu Ala Val Gly Lys Arg Val Ser Val Arg Ser Ile Ser Asn His  
20 25 30

Leu

<210> 111  
<211> 326  
<212> DNA  
<213> Streptococcus agalactiae

<400> 111  
atgtatagag aaattaccgc tgtcgaacac gatcgctttg tgagcgaatc caaccaaaca 60  
aacctacttc aatctcttaa ttggcccaaa gtaaaagaca actggggtag tcaattactt 120  
ggcttttttg acggtgaaac ccaaattgcc agcgctagta ttctcatcaa atcacttcct 180  
cttggcttct ccatgctgta tattccgcgt ggaccaatca tggattactc caatctagat 240

attgtaacta aggtccttaa ggaccttaaa gcttttggca aaaaacaaag agctctcttt 300

atcaagtgtg atcctctcat ctattt 326

<210> 112

<211> 108

<212> PRT

<213> Streptococcus agalactiae

<400> 112

Met Tyr Arg Glu Ile Thr Ala Val Glu His Asp Arg Phe Val Ser Glu  
1 5 10 15

Ser Asn Gln Thr Asn Leu Leu Gln Ser Leu Asn Trp Pro Lys Val Lys  
20 25 30

Asp Asn Trp Gly Ser Gln Leu Leu Gly Phe Phe Asp Gly Glu Thr Gln  
35 40 45

Ile Ala Ser Ala Ser Ile Leu Ile Lys Ser Leu Pro Leu Gly Phe Ser  
50 55 60

Met Leu Tyr Ile Pro Arg Gly Pro Ile Met Asp Tyr Ser Asn Leu Asp  
65 70 75 80

Ile Val Thr Lys Val Leu Lys Asp Leu Lys Ala Phe Gly Lys Lys Gln  
85 90 95

Arg Ala Leu Phe Ile Lys Cys Asp Pro Leu Ile Tyr  
100 105

<210> 113

<211> 215

<212> DNA

<213> Streptococcus agalactiae

<400> 113

atggacaaga aaaaaatctt agtaacgggt attgtgccta aagaaggtct aagaaagctt 60

atggaccgat ttgatgttac ttattcagaa gatcgcccat tttcacgtga ctatgtgtta 120

gagcatttat ctgaatatga cggatgggta ctcattgggac aaaaagggtga taaagagatg 180

attgatgcag gtgaaaactt acaaattatt tcttt 215

<210> 114

<211> 71

<212> PRT

<213> Streptococcus agalactiae

<400> 114

Met Asp Lys Lys Lys Ile Leu Val Thr Gly Ile Val Pro Lys Glu Gly  
1 5 10 15

Leu Arg Lys Leu Met Asp Arg Phe Asp Val Thr Tyr Ser Glu Asp Arg  
 20 25 30

Pro Phe Ser Arg Asp Tyr Val Leu Glu His Leu Ser Glu Tyr Asp Gly  
 35 40 45

Trp Leu Leu Met Gly Gln Lys Gly Asp Lys Glu Met Ile Asp Ala Gly  
 50 55 60

Glu Asn Leu Gln Ile Ile Ser  
 65 70

<210> 115  
 <211> 459  
 <212> DNA  
 <213> Streptococcus agalactiae

<400> 115  
 atttcgaaag atgactacca aaatattagt tttggacagg atccagaagt tgttgattat 60  
 gctgggtctgt ttgaaaaacg ccgtccagtt ttagaaaaag cagttaaaaa tttcttgcaa 120  
 gaagagagag ctacgagaat gctatctgat ttcttgcaag aagaaaaatg ggtaactgat 180  
 tttgctgaat ttatggcgat caaagaacat tttggtaata aggcgcttca agaatgggat 240  
 gacaaggcta ttatacgccg cgaagaagaa gccttagcag gatatcggtca aaagcttagt 300  
 gaagtgataa aatatcatga agtaacgcaa tatttctttt acaaacaatg gtttgagtta 360  
 aaagaatatg ctaatgataa agggattcaa attatcggtg atatgccaat ctacgtttct 420  
 gccgatagtg tagaagtttg gacaatgcct gaactgttt 459

<210> 116  
 <211> 153  
 <212> PRT  
 <213> Streptococcus agalactiae

<400> 116

Ile Ser Lys Asp Asp Tyr Gln Asn Ile Ser Phe Gly Gln Asp Pro Glu  
 1 5 10 15

Val Val Asp Tyr Ala Gly Leu Phe Glu Lys Arg Arg Pro Val Leu Glu  
 20 25 30

Lys Ala Val Lys Asn Phe Leu Gln Glu Glu Arg Ala Thr Arg Met Leu  
 35 40 45

Ser Asp Phe Leu Gln Glu Glu Lys Trp Val Thr Asp Phe Ala Glu Phe  
 50 55 60

Met Ala Ile Lys Glu His Phe Gly Asn Lys Ala Leu Gln Glu Trp Asp  
 65 70 75 80

Asp Lys Ala Ile Ile Arg Arg Glu Glu Glu Ala Leu Ala Gly Tyr Arg  
85 90 95

Gln Lys Leu Ser Glu Val Ile Lys Tyr His Glu Val Thr Gln Tyr Phe  
100 105 110

Phe Tyr Lys Gln Trp Phe Glu Leu Lys Glu Tyr Ala Asn Asp Lys Gly  
115 120 125

Ile Gln Ile Ile Gly Asp Met Pro Ile Tyr Val Ser Ala Asp Ser Val  
130 135 140

Glu Val Trp Thr Met Pro Glu Leu Phe  
145 150

<210> 117  
<211> 1143  
<212> DNA  
<213> Streptococcus agalactiae

<400> 117  
atggcaaaac agaaaaataa ctggcgccgt gttggagttg gtgtccttac acttgcttca 60  
gttgcgactc ttgctgcatg tggaagtaaa tcagcttccc aggattctaa tggagcgatt 120  
aattgggcta ttccaacaga aatcaatata ctagatttat ctaaagttac agacacttac 180  
tcaaattctag ctattggtaa ctctagtagt aatttccttc gcttagataa agatggaaag 240  
acaagaccag acttggctac taaagttgat gtttcaaaag atggcttaac ttatacagct 300  
acattacgta aaggcttgaa gtggtcagat ggcagtaaac ttactgcaaa ggattttgtt 360  
tattcatggc aacgttttagt tgatcctaaa acagcttcac aatatgctta ccttgctgtt 420  
gaagggcatg tgcttaaatgc cgataaaatc aacgaaggac aagagaaaga cttgaataag 480  
ctaggtgtta aggcagaagg cgatgacaaa gttgttatta ctttatctag tccgtctccg 540  
caattcatct actaccttgc attcactaac ttcattgccac aaaaacaaga agttgttgaa 600  
aaatatggaa aagattacgc aactacttca aaaaatacag ttactcagg accatatact 660  
gttgaagggt ggaatgggtc gaatgggtact ttcacgctga agaaaaacaa aaattattgg 720  
gacgctaaaa atgtaaaaac aaaagaagtt cgcattccaga ctgttaaaaa accagatacc 780  
gccgttcaaa tgtataaacg tgggtgagtt gatgcagcta atatctcaaa tacttctgct 840  
atttatcaag ctaataaaaa taataaagat gtcacagatg ttctagaagc gaccactgcc 900  
tatatggaat ataatactac tggttctgtg aaagggttg ataatgttaa gattcgtcgc 960  
gccttaaact tagcaactaa ccgtaaagga gttgttcaag cagccgttga tacaggctca 1020  
aaaccggcaa ttgcttttgc acctactggg ttagccaaaa caccagatgg aactgatttg 1080

gcaaaatatg ttgccccagg ttatgaatat aataaaactg aagcagcaaa actctttaga 1140  
cta 1143

<210> 118  
<211> 381  
<212> PRT  
<213> Streptococcus agalactiae

<400> 118

Met	Ala	Lys	Gln	Lys	Asn	Asn	Trp	Arg	Arg	Val	Gly	Val	Gly	Val	Leu	1	5	10	15
Thr	Leu	Ala	Ser	Val	Ala	Thr	Leu	Ala	Ala	Cys	Gly	Ser	Lys	Ser	Ala	20	25	30	
Ser	Gln	Asp	Ser	Asn	Gly	Ala	Ile	Asn	Trp	Ala	Ile	Pro	Thr	Glu	Ile	35	40	45	
Asn	Thr	Leu	Asp	Leu	Ser	Lys	Val	Thr	Asp	Thr	Tyr	Ser	Asn	Leu	Ala	50	55	60	
Ile	Gly	Asn	Ser	Ser	Ser	Asn	Phe	Leu	Arg	Leu	Asp	Lys	Asp	Gly	Lys	65	70	75	80
Thr	Arg	Pro	Asp	Leu	Ala	Thr	Lys	Val	Asp	Val	Ser	Lys	Asp	Gly	Leu	85	90	95	
Thr	Tyr	Thr	Ala	Thr	Leu	Arg	Lys	Gly	Leu	Lys	Trp	Ser	Asp	Gly	Ser	100	105	110	
Lys	Leu	Thr	Ala	Lys	Asp	Phe	Val	Tyr	Ser	Trp	Gln	Arg	Leu	Val	Asp	115	120	125	
Pro	Lys	Thr	Ala	Ser	Gln	Tyr	Ala	Tyr	Leu	Ala	Val	Glu	Gly	His	Val	130	135	140	
Leu	Asn	Ala	Asp	Lys	Ile	Asn	Glu	Gly	Gln	Glu	Lys	Asp	Leu	Asn	Lys	145	150	155	160
Leu	Gly	Val	Lys	Ala	Glu	Gly	Asp	Asp	Lys	Val	Val	Ile	Thr	Leu	Ser	165	170	175	
Ser	Pro	Ser	Pro	Gln	Phe	Ile	Tyr	Tyr	Leu	Ala	Phe	Thr	Asn	Phe	Met	180	185	190	
Pro	Gln	Lys	Gln	Glu	Val	Val	Glu	Lys	Tyr	Gly	Lys	Asp	Tyr	Ala	Thr	195	200	205	
Thr	Ser	Lys	Asn	Thr	Val	Tyr	Ser	Gly	Pro	Tyr	Thr	Val	Glu	Gly	Trp	210	215	220	
Asn	Gly	Ser	Asn	Gly	Thr	Phe	Thr	Leu	Lys	Lys	Asn	Lys	Asn	Tyr	Trp	225	230	235	240

Asp Ala Lys Asn Val Lys Thr Lys Glu Val Arg Ile Gln Thr Val Lys  
 245 250 255  
 Lys Pro Asp Thr Ala Val Gln Met Tyr Lys Arg Gly Glu Leu Asp Ala  
 260 265 270  
 Ala Asn Ile Ser Asn Thr Ser Ala Ile Tyr Gln Ala Asn Lys Asn Asn  
 275 280 285  
 Lys Asp Val Thr Asp Val Leu Glu Ala Thr Thr Ala Tyr Met Glu Tyr  
 290 295 300  
 Asn Thr Thr Gly Ser Val Lys Gly Leu Asp Asn Val Lys Ile Arg Arg  
 305 310 315 320  
 Ala Leu Asn Leu Ala Thr Asn Arg Lys Gly Val Val Gln Ala Ala Val  
 325 330 335  
 Asp Thr Gly Ser Lys Pro Ala Ile Ala Phe Ala Pro Thr Gly Leu Ala  
 340 345 350  
 Lys Thr Pro Asp Gly Thr Asp Leu Ala Lys Tyr Val Ala Pro Gly Tyr  
 355 360 365  
 Glu Tyr Asn Lys Thr Glu Ala Ala Lys Leu Phe Arg Leu  
 370 375 380

<210> 119  
 <211> 234  
 <212> DNA  
 <213> Streptococcus agalactiae

<400> 119  
 ttgagagttt atgaaaataa agaagagttg aaaaaagaaa taagtaaaac atttgagaaa 60  
 tacattatgg aatttaataa tattccagag aatctaaaag ataaaagaat tgatgaagtt 120  
 gatagaactc cagcagaaaa cttttcttat caggttggct ggaccaactt ggttcttaaa 180  
 tgggaagaag atgaaagaaa gggacttcaa gtaaaaacac catcggataa attt 234

<210> 120  
 <211> 78  
 <212> PRT  
 <213> Streptococcus agalactiae

<400> 120

Met Arg Val Tyr Glu Asn Lys Glu Glu Leu Lys Lys Glu Ile Ser Lys  
 1 5 10 15  
 Thr Phe Glu Lys Tyr Ile Met Glu Phe Asn Asn Ile Pro Glu Asn Leu  
 20 25 30  
 Lys Asp Lys Arg Ile Asp Glu Val Asp Arg Thr Pro Ala Glu Asn Leu

35	40	45
Ser Tyr Gln Val Gly Trp Thr Asn Leu Val Leu Lys Trp Glu Glu Asp		
50	55	60

Glu Arg Lys Gly Leu Gln Val Lys Thr Pro Ser Asp Lys Phe
65 70 75

<210> 121  
 <211> 150  
 <212> DNA  
 <213> Streptococcus agalactiae

<400> 121  
 atgtcaaagt ttgatagtca gaaaataatt actccgatta tgaagtttgt caatatgcga 60  
 gggattattg cactcaaaga tggcatgcta gcaattttac cactaacagt tggtgggagt 120  
 ctcttttttaa tattagggca gcttccattt 150

<210> 122  
 <211> 50  
 <212> PRT  
 <213> Streptococcus agalactiae

<400> 122

Met Ser Lys Phe Asp Ser Gln Lys Ile Ile Thr Pro Ile Met Lys Phe
1 5 10 15

Val Asn Met Arg Gly Ile Ile Ala Leu Lys Asp Gly Met Leu Ala Ile
20 25 30

Leu Pro Leu Thr Val Val Gly Ser Leu Phe Leu Ile Leu Gly Gln Leu
35 40 45

Pro Phe
50

<210> 123  
 <211> 535  
 <212> DNA  
 <213> Streptococcus agalactiae

<400> 123  
 gagaccactt catcagttaa accagcagga attgaccgta tcaatcatatc ctcaacaccc 60  
 ccgaagaaaa ctacccccaa cattgcaacg acgcatagct tcaaagatcg ttgtgatact 120  
 ttagaaagaa ttcacaatga agacattgat gtttggttctg gattcatttg tggatatggga 180  
 gagagcgatg aggggctcat cacattagct ttcagactaa aagaactgaa cccctattct 240  
 atccctgtca attttttact tgctgttgaa ggaacacctc ttggaaaata taactatttg 300  
 actcccatta aatgcttaaa aattatggcc atgttgcgtt ttgtttttcc tttcaaggaa 360

ttaagattaa gtgctggacg ggaggtccat tttgagaatt ttgaatcatt agtcacctta 420  
 cttgttgact caactttttt gggaaattac ctaacagagg ggggtcgcaa tcaacatacc 480  
 gatattgaat tcttggaataa attacaacta aatcatacta aaaaggaatt aattt 535

<210> 124  
 <211> 178  
 <212> PRT  
 <213> Streptococcus agalactiae

<400> 124

Glu	Thr	Thr	Ser	Ser	Val	Lys	Pro	Ala	Gly	Ile	Asp	Arg	Ile	Asn	His
1				5					10					15	
Thr	Ser	Thr	Pro	Pro	Lys	Lys	Thr	Thr	Pro	Asn	Ile	Ala	Thr	Thr	His
			20					25					30		
Ser	Phe	Lys	Asp	Arg	Cys	Asp	Thr	Leu	Glu	Arg	Ile	His	Asn	Glu	Asp
		35					40					45			
Ile	Asp	Val	Cys	Ser	Gly	Phe	Ile	Cys	Gly	Met	Gly	Glu	Ser	Asp	Glu
	50					55					60				
Gly	Leu	Ile	Thr	Leu	Ala	Phe	Arg	Leu	Lys	Glu	Leu	Asn	Pro	Tyr	Ser
65					70					75					80
Ile	Pro	Val	Asn	Phe	Leu	Leu	Ala	Val	Glu	Gly	Thr	Pro	Leu	Gly	Lys
			85						90					95	
Tyr	Asn	Tyr	Leu	Thr	Pro	Ile	Lys	Cys	Leu	Lys	Ile	Met	Ala	Met	Leu
			100					105					110		
Arg	Phe	Val	Phe	Pro	Phe	Lys	Glu	Leu	Arg	Leu	Ser	Ala	Gly	Arg	Glu
		115					120					125			
Val	His	Phe	Glu	Asn	Phe	Glu	Ser	Leu	Val	Thr	Leu	Leu	Val	Asp	Ser
	130					135					140				
Thr	Phe	Leu	Gly	Asn	Tyr	Leu	Thr	Glu	Gly	Gly	Arg	Asn	Gln	His	Thr
145					150					155					160
Asp	Ile	Glu	Phe	Leu	Glu	Lys	Leu	Gln	Leu	Asn	His	Thr	Lys	Lys	Glu
				165					170					175	

Leu Ile

<210> 125  
 <211> 563  
 <212> DNA  
 <213> Streptococcus agalactiae

<400> 125

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atgccggttt ggactgcaca gtctattcca aaggcatttt tagaaaagca taataactaag      60
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cctgatggag aggaaatctc gcggcatatt tttgatgcta gtagtgatat tccttttggt      180
gatccacaag tctggcataa agtttcgccg aatagtccag acttaagttg ctatctaact      240
ttttactgcc aaaaagaaga ttacttccat aaaaaatatg gtctcacgcg cacacattct      300
gaggttatcg ccagtgcacc tctcttatct gagaagagta atatattaga ccttgggtgt      360
ggccaagggc gaaactcact ttatttatcg ctgctgggac atcaagtgac ttctgtcgat      420
tcaaacggac agagccttgt agctttagaa aatatggcat tagaagaaga gcttccttac      480
aatataaaaa ggtatgatat taatactact gctattgaag ggcactatga ttttatttta      540
tcaactgtgg tatttatggt ttt                                              563

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<210> 126
<211> 187
<212> PRT
<213> Streptococcus agalactiae

<400> 126

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Met Pro Val Trp Thr Ala Gln Ser Ile Pro Lys Ala Phe Leu Glu Lys
1          5          10          15

His Asn Thr Lys Glu Gly Thr Trp Ala Lys Leu Thr Ile Leu Ser Gly
          20          25          30

Ser Leu Val Phe Tyr Gln Leu Ser Pro Asp Gly Glu Glu Ile Ser Arg
          35          40          45

His Ile Phe Asp Ala Ser Ser Asp Ile Pro Phe Val Asp Pro Gln Val
          50          55          60

Trp His Lys Val Ser Pro Asn Ser Pro Asp Leu Ser Cys Tyr Leu Thr
65          70          75          80

Phe Tyr Cys Gln Lys Glu Asp Tyr Phe His Lys Lys Tyr Gly Leu Thr
          85          90          95

Arg Thr His Ser Glu Val Ile Ala Ser Ala Pro Leu Leu Ser Glu Lys
          100          105          110

Ser Asn Ile Leu Asp Leu Gly Cys Gly Gln Gly Arg Asn Ser Leu Tyr
          115          120          125

Leu Ser Leu Leu Gly His Gln Val Thr Ser Val Asp Ser Asn Gly Gln
          130          135          140

Ser Leu Val Ala Leu Glu Asn Met Ala Leu Glu Glu Glu Leu Pro Tyr
145          150          155          160

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Asn Ile Lys Arg Tyr Asp Ile Asn Thr Thr Ala Ile Glu Gly His Tyr  
165 170 175

Asp Phe Ile Leu Ser Thr Val Val Phe Met Phe  
180 185

<210> 127  
<211> 417  
<212> DNA  
<213> Streptococcus agalactiae

<400> 127  
atgacaaagc aaataattgc catttgggct gaagatgaag accatttgat tggagttaat 60  
ggcgggtttac catggaggct tcctaaagag ttacatcact tcaaagaaac gaccatgggg 120  
caggctttgc ttatgggacg aaagacctt gatggaatga accgtcgtgt ttacctggt 180  
agagagacaa tcattcttaac aaaagatgaa caattccaag cagatggagt gacagtccta 240  
aatagtgttg aacaagttat aaaatgggtt caggaacata ataagacctt atttattgta 300  
ggtggtgcaa gtatttataa agcatttctg ccttattgtg aagcaatcat aaaaactaaa 360  
gttcatggaa aattcaaagg tgatacctat tttcctgatg ttaatctatc tgagttt 417

<210> 128  
<211> 139  
<212> PRT  
<213> Streptococcus agalactiae

<400> 128

Met Thr Lys Gln Ile Ile Ala Ile Trp Ala Glu Asp Glu Asp His Leu  
1 5 10 15

Ile Gly Val Asn Gly Gly Leu Pro Trp Arg Leu Pro Lys Glu Leu His  
20 25 30

His Phe Lys Glu Thr Thr Met Gly Gln Ala Leu Leu Met Gly Arg Lys  
35 40 45

Thr Phe Asp Gly Met Asn Arg Arg Val Leu Pro Gly Arg Glu Thr Ile  
50 55 60

Ile Leu Thr Lys Asp Glu Gln Phe Gln Ala Asp Gly Val Thr Val Leu  
65 70 75 80

Asn Ser Val Glu Gln Val Ile Lys Trp Phe Gln Glu His Asn Lys Thr  
85 90 95

Leu Phe Ile Val Gly Gly Ala Ser Ile Tyr Lys Ala Phe Leu Pro Tyr  
100 105 110

Cys Glu Ala Ile Ile Lys Thr Lys Val His Gly Lys Phe Lys Gly Asp

115 120 125

Thr Tyr Phe Pro Asp Val Asn Leu Ser Glu Phe  
130 135

<210> 129  
<211> 543  
<212> DNA  
<213> Streptococcus agalactiae

<400> 129  
ttgtggccaa actgtgcccc gcttattaat agcactttgt tcaccattga agatatctta 60  
acatcaggtg ctcatagcaa ccctatttta atggggggtta tacttggcgg gacaattgta 120  
gtagtggcga cagcaccact ttcttctatg gcattgacag ctatgctagg attaaccgga 180  
atgcctatgg ctataggagc cttgtctgtc tttggttcgt catttatgaa tgggtgtactt 240  
ttccataaat taaaacttgg aagtcgtaaa gataatatag cttttgctgt tgagcctcta 300  
actcaagctg acgtgacttc agctaaccct attccaatct atgtcactaa ttttgttggt 360  
ggcgcagctt gtggtatttt aattgccttg atgaaattag ttaatgatac tcctggaaca 420  
gcgacaccaa ttgcaggatt tgctgtcatg tttgcctata acccaatgat aaaagtacta 480  
ataaccgctc taggttgtat taccctatct ttactagcag gctattttgg aggcattggt 540  
ttt 543

<210> 130  
<211> 181  
<212> PRT  
<213> Streptococcus agalactiae

<400> 130

Met Trp Pro Asn Cys Ala Pro Leu Ile Asn Ser Thr Leu Phe Thr Ile  
1 5 10 15  
Glu Asp Ile Leu Thr Ser Gly Ala His Ser Asn Pro Ile Leu Met Gly  
20 25 30  
Val Ile Leu Gly Gly Thr Ile Val Val Val Ala Thr Ala Pro Leu Ser  
35 40 45  
Ser Met Ala Leu Thr Ala Met Leu Gly Leu Thr Gly Met Pro Met Ala  
50 55 60  
Ile Gly Ala Leu Ser Val Phe Gly Ser Ser Phe Met Asn Gly Val Leu  
65 70 75 80  
Phe His Lys Leu Lys Leu Gly Ser Arg Lys Asp Asn Ile Ala Phe Ala  
85 90 95

Val Glu Pro Leu Thr Gln Ala Asp Val Thr Ser Ala Asn Pro Ile Pro  
100 105 110

Ile Tyr Val Thr Asn Phe Val Gly Gly Ala Ala Cys Gly Ile Leu Ile  
115 120 125

Ala Leu Met Lys Leu Val Asn Asp Thr Pro Gly Thr Ala Thr Pro Ile  
130 135 140

Ala Gly Phe Ala Val Met Phe Ala Tyr Asn Pro Met Ile Lys Val Leu  
145 150 155 160

Ile Thr Ala Leu Gly Cys Ile Ile Leu Ser Leu Leu Ala Gly Tyr Phe  
165 170 175

Gly Gly Ile Val Phe  
180

<210> 131  
<211> 172  
<212> DNA  
<213> Streptococcus agalactiae

<400> 131  
atgttttttaa gtataatggc aggtgtcata gcatttgtcc tgacagttat tgccattcca 60  
cgcttcatta agttttacca attgaagaaa attggcgggc aacaaatgca tgaagatgtc 120  
aaacaacatc tagccaaagc aggtacgccg acaatgggag gaacggtatt tt 172

<210> 132  
<211> 57  
<212> PRT  
<213> Streptococcus agalactiae

<400> 132

Met Phe Leu Ser Ile Met Ala Gly Val Ile Ala Phe Val Leu Thr Val  
1 5 10 15

Ile Ala Ile Pro Arg Phe Ile Lys Phe Tyr Gln Leu Lys Lys Ile Gly  
20 25 30

Gly Gln Gln Met His Glu Asp Val Lys Gln His Leu Ala Lys Ala Gly  
35 40 45

Thr Pro Thr Met Gly Gly Thr Val Phe  
50 55

<210> 133  
<211> 113  
<212> DNA  
<213> Streptococcus agalactiae

<400> 133  
atgaaaccat atttatcttt tattggtaga acgttattat acttcggtat tttattgtta 60

ctaatttact tttttgcata ccttggtcgc ggacaaggca gttttattta taa 113

<210> 134  
<211> 37  
<212> PRT  
<213> Streptococcus agalactiae

<400> 134

Met Lys Pro Tyr Leu Ser Phe Ile Gly Arg Thr Leu Leu Tyr Phe Gly  
1 5 10 15

Ile Leu Leu Leu Leu Ile Tyr Phe Phe Ala Tyr Leu Gly Arg Gly Gln  
20 25 30

Gly Ser Phe Ile Tyr  
35

<210> 135  
<211> 651  
<212> DNA  
<213> Streptococcus agalactiae

<400> 135

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tttatggcac ttctagcgca tcaatttgaa gaatatcagt ttcccgggtgg ggcatacacct 180  
atcattaact atgttggttta tgatgaagaa gagctgatgg attgttttcc aggcaatact 240  
cagtctatta tgttgggttaa tactattgct tggttgcttt acattgctag tattgctttt 300  
cctcaagctt attggcttgg attaggagtc atgttcttta gtctaacgca gctcttgggt 360  
catgggttttc agatgaatat taaacttaaa acttgggtata atcctgggtct agcaacgaca 420  
gtattttctcc tagtaccaat agcttgcgca tacatctatc aagctagtgc agaaggaatg 480  
ctcacttggg gagattggct aggtgggtttt atcatgttga ttgtctgtgt actaactagc 540  
attattgcac ctgtacagct attgaaggat aaggagacca attatattat tagtccttgg 600  
caaatggacc gttttcataa ggtcgttaat tttgtaagga taaaaaata a 651

<210> 136  
<211> 216  
<212> PRT  
<213> Streptococcus agalactiae

<400> 136

Met Ser Tyr Phe Arg Asn Tyr Trp Tyr Arg Phe Gly Ala Ile Leu Phe

1	5	10	15
Ile Ile Leu Ala Val Ile Leu Leu Val Phe Arg Pro Asp Trp Ser Met	20	25	30
Leu His Tyr Leu Leu Tyr Phe Tyr Phe Met Ala Leu Leu Ala His Gln	35	40	45
Phe Glu Glu Tyr Gln Phe Pro Gly Gly Ala Ser Pro Ile Ile Asn Tyr	50	55	60
Val Val Tyr Asp Glu Glu Glu Leu Met Asp Cys Phe Pro Gly Asn Thr	65	70	75
Gln Ser Ile Met Leu Val Asn Thr Ile Ala Trp Leu Leu Tyr Ile Ala	85	90	95
Ser Ile Ala Phe Pro Gln Ala Tyr Trp Leu Gly Leu Gly Val Met Phe	100	105	110
Phe Ser Leu Thr Gln Leu Leu Gly His Gly Phe Gln Met Asn Ile Lys	115	120	125
Leu Lys Thr Trp Tyr Asn Pro Gly Leu Ala Thr Thr Val Phe Leu Leu	130	135	140
Val Pro Ile Ala Cys Ala Tyr Ile Tyr Gln Ala Ser Ala Glu Gly Met	145	150	155
Leu Thr Trp Gly Asp Trp Leu Gly Gly Phe Ile Met Leu Ile Val Cys	165	170	175
Val Leu Thr Ser Ile Ile Ala Pro Val Gln Leu Leu Lys Asp Lys Glu	180	185	190
Thr Asn Tyr Ile Ile Ser Pro Trp Gln Met Asp Arg Phe His Lys Val	195	200	205
Val Asn Phe Val Arg Ile Lys Lys	210	215	

<210> 137

<211> 75

<212> DNA

<213> Streptococcus agalactiae

<400> 137

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agcgaagaag aagtt 75

<210> 138

<211> 25

<212> PRT

<213> Streptococcus agalactiae

<400> 138

Met Pro Leu Thr Ala Leu Glu Ile Lys Asp Lys Thr Phe Ser Ser Lys  
1 5 10 15

Phe Arg Gly Tyr Ser Glu Glu Glu Val  
20 25

<210> 139

<211> 377

<212> DNA

<213> Streptococcus agalactiae

<400> 139

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gagagttag gacgctacgc cttgagatca atgctagcag gggcttattt gacaatgagt 120  
actgctgccg gtatcgtcgc agctgatact attggtaaaa tttctcctgc tctatcaggt 180  
tttgtatttg ctttcatctt tagttttgga cttatttatg ttttaatat taatgggtgaa 240  
ttggcgacat ctaatatgct ttatctcact gcaggagcct ataataaaaa tatctcttgg 300  
aaaaaagcca taacaatttt aatttattgt acttttttca acctcggttg tgcttgtata 360  
ttagcttggt tgttttaa 377

<210> 140

<211> 125

<212> PRT

<213> Streptococcus agalactiae

<400> 140

Met Ser Leu Phe Gln Glu Lys Ile Ala Tyr Asn Cys Ala Lys Lys Glu  
1 5 10 15

Ala Leu Tyr Lys Glu Ser Leu Gly Arg Tyr Ala Leu Arg Ser Met Leu  
20 25 30

Ala Gly Ala Tyr Leu Thr Met Ser Thr Ala Ala Gly Ile Val Ala Ala  
35 40 45

Asp Thr Ile Gly Lys Ile Ser Pro Ala Leu Ser Gly Phe Val Phe Ala  
50 55 60

Phe Ile Phe Ser Phe Gly Leu Ile Tyr Val Leu Ile Phe Asn Gly Glu  
65 70 75 80

Leu Ala Thr Ser Asn Met Leu Tyr Leu Thr Ala Gly Ala Tyr Asn Lys  
85 90 95

Asn Ile Ser Trp Lys Lys Ala Ile Thr Ile Leu Ile Tyr Cys Thr Phe  
100 105 110

Phe Asn Leu Val Gly Ala Cys Ile Leu Ala Trp Leu Phe  
 115 120 125

<210> 141  
 <211> 419  
 <212> DNA  
 <213> Streptococcus agalactiae

<400> 141  
 aagttacaag cgactgaagt taagagcgtt ccggtagcac aaccagcttc aacaacaaat 60  
 gcagtagctg cacatcctga aaatgcaggg ctccaacctc atgttgcagc ttataaagaa 120  
 aaagtagcgt caacttatgg agttaatgaa ttcagtacat accgtgcggg agatccaggt 180  
 gatcatggta aaggttttagc agttgacttt attgtaggta aaaaccaagc acttggtaat 240  
 gaagttgcac agtactctac acaaaatatg gcagcaaata acatttcata tgttatctgg 300  
 caacaaaagt ttatttcaaa tacaaatagt atttatggac ctgctaatac ttggaatgca 360  
 atgccagatc gtggtggcgt tactgccaac cactatgacc acgttcacgt atcatttaa 419

<210> 142  
 <211> 139  
 <212> PRT  
 <213> Streptococcus agalactiae

<400> 142  
 Lys Leu Gln Ala Thr Glu Val Lys Ser Val Pro Val Ala Gln Pro Ala  
 1 5 10 15  
 Ser Thr Thr Asn Ala Val Ala Ala His Pro Glu Asn Ala Gly Leu Gln  
 20 25 30  
 Pro His Val Ala Ala Tyr Lys Glu Lys Val Ala Ser Thr Tyr Gly Val  
 35 40 45  
 Asn Glu Phe Ser Thr Tyr Arg Ala Gly Asp Pro Gly Asp His Gly Lys  
 50 55 60  
 Gly Leu Ala Val Asp Phe Ile Val Gly Lys Asn Gln Ala Leu Gly Asn  
 65 70 75 80  
 Glu Val Ala Gln Tyr Ser Thr Gln Asn Met Ala Ala Asn Asn Ile Ser  
 85 90 95  
 Tyr Val Ile Trp Gln Gln Lys Phe Tyr Ser Asn Thr Asn Ser Ile Tyr  
 100 105 110  
 Gly Pro Ala Asn Thr Trp Asn Ala Met Pro Asp Arg Gly Gly Val Thr  
 115 120 125  
 Ala Asn His Tyr Asp His Val His Val Ser Phe  
 130 135

<210> 143  
 <211> 693  
 <212> DNA  
 <213> Streptococcus agalactiae

<400> 143  
 atgattccag tagttattga acaaacaagt cgtggtgaac gttcttatga tatttactca 60  
 cgtcttttaa aagatcgat tattatgttg acaggccaag ttgaggataa tatggccaat 120  
 agtatcattg cacagttatt gtttctcgat gcacaagata atacaaagga tatttacctt 180  
 tatgtcaata caccaggtgg ttcagtatcg gctggacttg ctattgtgga caccatgaac 240  
 ttcattaaat cggacgtaca gacgattggt atggggatgg ctgcttcgat gggaaccatt 300  
 attgcttcaa gtggtgctaa aggaaaacgt tttatgttac cgaatgcaga atatatgatc 360  
 caccaaccaa tgggcggaac aggcggaggt acacagcaat ctgatatggc tatcgctgct 420  
 gagcatcttt taaaaacgcg tcatacttta gaaaaaatct tagctgataa ttctgggtcaa 480  
 tctattgaaa aagtccatga tgatgcagag cgtgateggt ggatgagtgc tcaagaacac 540  
 ttgattatgg ctttattgat gctattatgg aaaataataa tttacaataa tagatttaaa 600  
 agagttgagt ttaccaactc tttttttatt tgttggaatt atgttataat cttagtaatt 660  
 acagatatga cgcagaaagg aaaaaattat tga 693

<210> 144  
 <211> 230  
 <212> PRT  
 <213> Streptococcus agalactiae

<400> 144  
 Met Ile Pro Val Val Ile Glu Gln Thr Ser Arg Gly Glu Arg Ser Tyr  
 1 5 10 15  
 Asp Ile Tyr Ser Arg Leu Leu Lys Asp Arg Ile Ile Met Leu Thr Gly  
 20 25 30  
 Gln Val Glu Asp Asn Met Ala Asn Ser Ile Ile Ala Gln Leu Leu Phe  
 35 40 45  
 Leu Asp Ala Gln Asp Asn Thr Lys Asp Ile Tyr Leu Tyr Val Asn Thr  
 50 55 60  
 Pro Gly Gly Ser Val Ser Ala Gly Leu Ala Ile Val Asp Thr Met Asn  
 65 70 75 80  
 Phe Ile Lys Ser Asp Val Gln Thr Ile Val Met Gly Met Ala Ala Ser  
 85 90 95

Met Gly Thr Ile Ile Ala Ser Ser Gly Ala Lys Gly Lys Arg Phe Met  
100 105 110

Leu Pro Asn Ala Glu Tyr Met Ile His Gln Pro Met Gly Gly Thr Gly  
115 120 125

Gly Gly Thr Gln Gln Ser Asp Met Ala Ile Ala Ala Glu His Leu Leu  
130 135 140

Lys Thr Arg His Thr Leu Glu Lys Ile Leu Ala Asp Asn Ser Gly Gln  
145 150 155 160

Ser Ile Glu Lys Val His Asp Asp Ala Glu Arg Asp Arg Trp Met Ser  
165 170 175

Ala Gln Glu His Leu Ile Met Ala Leu Leu Met Leu Leu Trp Lys Ile  
180 185 190

Ile Ile Tyr Asn Asn Arg Phe Lys Arg Val Glu Phe Thr Asn Ser Phe  
195 200 205

Phe Ile Cys Trp Asn Tyr Val Ile Ile Leu Val Ile Thr Asp Met Thr  
210 215 220

Gln Lys Gly Lys Asn Tyr  
225 230

<210> 145  
<211> 459  
<212> DNA  
<213> Streptococcus agalactiae

<400> 145  
atgaaaccaa aaattattgg tgtacttggt ctaggaatat ttggacaaac actcgcacaa 60  
gaactaagta actttgaaca agatggttatt gctattgaca gcaatcctga aaatgtacaa 120  
gctgtcgccg aagttgttac aaaagcagct atcggagaca ttactgattt agctttccta 180  
aaacacatcg ggatcagtga ctgtgatact gttattattg ctacaggaaa cagtttagag 240  
agctcagtat tggccgtaat gcactgtaaa aagttaggcg tcccacaagt tattgctaaa 300  
gctcgaaacc ttgtatacga agaagtactt tatgaaattg gtgctgattt ggttatctct 360  
ccggagcgag aatctgggca aaatgttgct gcaaacctca tgagaaataa aattacagat 420  
gtcttccaga ttgaatctga tatttctgtc attgaattt 459

<210> 146  
<211> 153  
<212> PRT  
<213> Streptococcus agalactiae

<400> 146

Met	Lys	Pro	Lys	Ile	Ile	Gly	Val	Leu	Gly	Leu	Gly	Ile	Phe	Gly	Gln	
1				5				10					15			
Thr	Leu	Ala	Gln	Glu	Leu	Ser	Asn	Phe	Glu	Gln	Asp	Val	Ile	Ala	Ile	
			20					25					30			
Asp	Ser	Asn	Pro	Glu	Asn	Val	Gln	Ala	Val	Ala	Glu	Val	Val	Thr	Lys	
		35					40					45				
Ala	Ala	Ile	Gly	Asp	Ile	Thr	Asp	Leu	Ala	Phe	Leu	Lys	His	Ile	Gly	
	50					55					60					
Ile	Ser	Asp	Cys	Asp	Thr	Val	Ile	Ile	Ala	Thr	Gly	Asn	Ser	Leu	Glu	
65					70				75					80		
Ser	Ser	Val	Leu	Ala	Val	Met	His	Cys	Lys	Lys	Leu	Gly	Val	Pro	Gln	
			85					90						95		
Val	Ile	Ala	Lys	Ala	Arg	Asn	Leu	Val	Tyr	Glu	Glu	Val	Leu	Tyr	Glu	
			100				105						110			
Ile	Gly	Ala	Asp	Leu	Val	Ile	Ser	Pro	Glu	Arg	Glu	Ser	Gly	Gln	Asn	
	115					120						125				
Val	Ala	Ala	Asn	Leu	Met	Arg	Asn	Lys	Ile	Thr	Asp	Val	Phe	Gln	Ile	
	130					135					140					
Glu	Ser	Asp	Ile	Ser	Val	Ile	Glu	Phe								
145					150											

<210> 147  
 <211> 330  
 <212> DNA  
 <213> Streptococcus agalactiae

<400> 147  
 gtgcgttata gtaaagagat tatttcagtta gctataaccag ctatgattga aaatatctta 60  
 caaatgctca tgggagtagt tgataattat ctagtggctc agttaggtgt tgtagcagta 120  
 tcagggtgttt cagttgctaa taatataatt actatattatc aagctatttt tatagcttta 180  
 ggggcgagta tagcaagtct attggccaag tcgtttagcag gtagtgagaa ggatgatgca 240  
 atttcagtat gttctcaagc catttttcta acatcactga taggggcagt attaggaatt 300  
 atctcgattg tttttggaca aactttcttt 330

<210> 148  
 <211> 110  
 <212> PRT  
 <213> Streptococcus agalactiae

<400> 148

Met Arg Tyr Ser Lys Glu Ile Ile Gln Leu Ala Ile Pro Ala Met Ile

1	5	10	15
Glu Asn Ile Leu Gln Met Leu Met Gly Val Val Asp Asn Tyr Leu Val	20	25	30
Ala Gln Leu Gly Val Val Ala Val Ser Gly Val Ser Val Ala Asn Asn	35	40	45
Ile Ile Thr Ile Tyr Gln Ala Ile Phe Ile Ala Leu Gly Ala Ser Ile	50	55	60
Ala Ser Leu Leu Ala Lys Ser Leu Ala Gly Ser Glu Lys Asp Asp Ala	65	70	75
Ile Ser Val Cys Ser Gln Ala Ile Phe Leu Thr Ser Leu Ile Gly Ala	85	90	95
Val Leu Gly Ile Ile Ser Ile Val Phe Gly Gln Thr Phe Phe	100	105	110

<210> 149  
 <211> 240  
 <212> DNA  
 <213> Streptococcus agalactiae

<400> 149  
 ttgattaaca agtattcgtg ctttttgaag aggattctcc ataataatac tcctttaata 60  
 gttatcgtga gaagtatttt aaagaaaaac cgccaaggta gagcgacatt tctgccttta 120  
 actacaataa aaccaagaga attagcacaa cattatctct caaaattaca aagttctcaa 180  
 gggtttttag gaatagctag tgaattggta acctatgatc aacgcttgtc aaacattttt 240

<210> 150  
 <211> 80  
 <212> PRT  
 <213> Streptococcus agalactiae

<400> 150

Met Ile Asn Lys Tyr Ser Cys Phe Leu Lys Arg Ile Leu His Asn Asn	1	5	10	15
Thr Pro Leu Ile Val Ile Val Arg Ser Ile Leu Lys Lys Asn Arg Gln	20	25	30	
Gly Arg Ala Thr Phe Leu Pro Leu Thr Thr Ile Lys Pro Arg Glu Leu	35	40	45	
Ala Gln His Tyr Leu Ser Lys Leu Gln Ser Ser Gln Gly Phe Leu Gly	50	55	60	
Ile Ala Ser Glu Leu Val Thr Tyr Asp Gln Arg Leu Ser Asn Ile Phe	65	70	75	80

<210> 151  
<211> 649  
<212> DNA  
<213> Streptococcus agalactiae

<400> 151  
ttgttgactc acaaaaatat attattaacc attatatattg gattatattat gattatatta 60  
tcagcatgtg gtatgtctaa taaggaaatg gctgggtattg ataattggga acattatcaa 120  
aaggaaaaga aaattactat tggatttgat aatacttttg ttcctatggg atttgaaagt 180  
cgttctgggtg actataccgg ctttgatatt gatttagcta atgctgtttt taaagaatac 240  
ggatatttcag tgaaatggca gcctattaac tgggatatga aagaaactga acttaataat 300  
ggtaatatag accttatttg gaatgggtat tcaaaaacgg cagaacgtgc taaaaaagtc 360  
gcttttaciaa acccatatat gaataatcat caagtaattg ttactaaaac ttcatcacat 420  
attaatagta ttaaggatat gaaggggaaa aaactaggag cccagtcggg ttcattctgg 480  
tttgatgctt ttaacgctaa acctgatatt ttaaaaaagt ttgtaaaagg aaaagaagca 540  
gttcaatagc atactttcac tcaggctttg attgatttaa aaaataaccg tattgatgg 600  
cttttgattg atgaagttaa tgctaactat tatttaaagc aagaaggaa 649

<210> 152  
<211> 216  
<212> PRT  
<213> Streptococcus agalactiae

<400> 152  
Met Leu Thr His Lys Asn Ile Leu Leu Thr Ile Ile Phe Gly Leu Phe  
1 5 10 15  
Met Ile Ile Leu Ser Ala Cys Gly Met Ser Asn Lys Glu Met Ala Gly  
20 25 30  
Ile Asp Asn Trp Glu His Tyr Gln Lys Glu Lys Lys Ile Thr Ile Gly  
35 40 45  
Phe Asp Asn Thr Phe Val Pro Met Gly Phe Glu Ser Arg Ser Gly Asp  
50 55 60  
Tyr Thr Gly Phe Asp Ile Asp Leu Ala Asn Ala Val Phe Lys Glu Tyr  
65 70 75 80  
Gly Ile Ser Val Lys Trp Gln Pro Ile Asn Trp Asp Met Lys Glu Thr  
85 90 95  
Glu Leu Asn Asn Gly Asn Ile Asp Leu Ile Trp Asn Gly Tyr Ser Lys  
100 105 110

Thr Ala Glu Arg Ala Lys Lys Val Ala Phe Thr Asn Pro Tyr Met Asn  
 115 120 125  
 Asn His Gln Val Ile Val Thr Lys Thr Ser Ser His Ile Asn Ser Ile  
 130 135 140  
 Lys Asp Met Lys Gly Lys Lys Leu Gly Ala Gln Ser Gly Ser Ser Gly  
 145 150 155 160  
 Phe Asp Ala Phe Asn Ala Lys Pro Asp Ile Leu Lys Lys Phe Val Lys  
 165 170 175  
 Gly Lys Glu Ala Val Gln Tyr Asp Thr Phe Thr Gln Ala Leu Ile Asp  
 180 185 190  
 Leu Lys Asn Asn Arg Ile Asp Gly Leu Leu Ile Asp Glu Val Tyr Ala  
 195 200 205  
 Asn Tyr Tyr Leu Lys Gln Glu Gly  
 210 215

<210> 153  
 <211> 123  
 <212> DNA  
 <213> Streptococcus agalactiae

<400> 153  
 atgaaaattt ggaaaaaat aaccttaatg ttttctgcaa ttattttaac aacagtaatt 60  
 gcattgggag tctatgttgc ctcagcttat aatttttcga ctaatgaatt gtctaagact 120  
 ttt 123

<210> 154  
 <211> 41  
 <212> PRT  
 <213> Streptococcus agalactiae

<400> 154

Met Lys Ile Trp Lys Lys Ile Thr Leu Met Phe Ser Ala Ile Ile Leu  
 1 5 10 15  
 Thr Thr Val Ile Ala Leu Gly Val Tyr Val Ala Ser Ala Tyr Asn Phe  
 20 25 30  
 Ser Thr Asn Glu Leu Ser Lys Thr Phe  
 35 40

<210> 155  
 <211> 687  
 <212> DNA  
 <213> Streptococcus agalactiae

<400> 155  
 atgaaaaaac aaagactatt actgcttttt ggaggcttat taataatgat aatgatgaca 60

gcatgtaagg attcaaaaat cccagaaaac cgcacgaaaa aggaatacca ggcagaacag 120  
 aattttaagt catactttaa atatatatca gataaaaata actattttaga taatataaaa 180  
 gtttattact tttctataag tattttctaaa gatgtacaag ataaagtcag tgaaacaaca 240  
 acttggtcat atagactaga aaagcaaaag aatcaagagt tcattggtaa ttttgaacat 300  
 gaagtttagtg aatctagtca atattcaacc gaagttaaaa atcaaataca gtatccaatc 360  
 cagtataaag ataattcaat tcgttttact gaaaaaacac cgtcagaacg ttatgatgag 420  
 tttgttttta gttcatttga ttcttcatta ttaaaaaaat ataaaatata tgattactta 480  
 ctaaaacatc ccgaaactga attaaaaggt gtttcctata agattcctat aaattctgaa 540  
 attgtagccc cttttataaaa tcaattaaat ataaaaaatc ctaaaaaatc atctatttcg 600  
 gttacaaaaa cggaaagtaa agaattattat tataacaatca gtattgatac tgattctgag 660  
 atatattcta tattcgaagg tattcat 687

<210> 156  
 <211> 229  
 <212> PRT  
 <213> Streptococcus agalactiae

<400> 156

Met	Lys	Lys	Gln	Arg	Leu	Leu	Leu	Leu	Phe	Gly	Gly	Leu	Leu	Ile	Met
1				5					10					15	
Ile	Met	Met	Thr	Ala	Cys	Lys	Asp	Ser	Lys	Ile	Pro	Glu	Asn	Arg	Thr
			20					25					30		
Lys	Lys	Glu	Tyr	Gln	Ala	Glu	Gln	Asn	Phe	Lys	Ser	Tyr	Phe	Lys	Tyr
		35					40					45			
Ile	Ser	Asp	Lys	Asn	Asn	Tyr	Leu	Asp	Asn	Ile	Lys	Val	Tyr	Tyr	Phe
	50					55					60				
Ser	Ile	Ser	Ile	Ser	Lys	Asp	Val	Gln	Asp	Lys	Val	Ser	Glu	Thr	Thr
65					70					75				80	
Thr	Cys	Ser	Tyr	Arg	Leu	Glu	Lys	Gln	Lys	Asn	Gln	Glu	Phe	Ile	Gly
				85					90					95	
Asn	Phe	Glu	His	Glu	Val	Ser	Glu	Ser	Ser	Gln	Tyr	Ser	Thr	Glu	Val
			100					105					110		
Lys	Asn	Gln	Ile	Gln	Tyr	Pro	Ile	Gln	Tyr	Lys	Asp	Asn	Ser	Ile	Arg
		115					120					125			
Phe	Thr	Glu	Lys	Thr	Pro	Ser	Glu	Arg	Tyr	Asp	Glu	Phe	Val	Phe	Ser
	130					135					140				

Ser Phe Asp Ser Ser Leu Leu Lys Lys Tyr Lys Ile Tyr Asp Tyr Leu  
 145 150 155 160  
 Leu Lys His Pro Glu Thr Glu Leu Lys Gly Val Ser Tyr Lys Ile Pro  
 165 170 175  
 Ile Asn Ser Glu Ile Val Ala Pro Phe Ile Asn Gln Leu Asn Ile Lys  
 180 185 190  
 Asn Pro Lys Lys Ser Ser Ile Ser Val Thr Lys Thr Glu Ser Lys Glu  
 195 200 205  
 Tyr Tyr Tyr Thr Ile Ser Ile Asp Thr Asp Ser Glu Ile Tyr Ser Ile  
 210 215 220  
 Phe Glu Gly Ile His  
 225

<210> 157  
 <211> 272  
 <212> DNA  
 <213> Streptococcus agalactiae

<400> 157  
 atgacatttg acaccattga tcaattagcg gttaatacag tccgcacgct ttctattgat 60  
 gctatccaag cagcaaattc tgggcaccca ggtcttccta tgggagctgc gcctatggct 120  
 tatgtgcttt ggaataaatt cttaaagtga aacccaaaaa caagtcgcaa ttggacaaac 180  
 cgtgaccggt ttgtactttc agctgggcat gggttcagctc ttctttatag cctacttcat 240  
 ttagctggct atgatttatc aattgatgat tt 272

<210> 158  
 <211> 90  
 <212> PRT  
 <213> Streptococcus agalactiae

<400> 158

Met Thr Phe Asp Thr Ile Asp Gln Leu Ala Val Asn Thr Val Arg Thr  
 1 5 10 15  
 Leu Ser Ile Asp Ala Ile Gln Ala Ala Asn Ser Gly His Pro Gly Leu  
 20 25 30  
 Pro Met Gly Ala Ala Pro Met Ala Tyr Val Leu Trp Asn Lys Phe Leu  
 35 40 45  
 Asn Val Asn Pro Lys Thr Ser Arg Asn Trp Thr Asn Arg Asp Arg Phe  
 50 55 60  
 Val Leu Ser Ala Gly His Gly Ser Ala Leu Leu Tyr Ser Leu Leu His  
 65 70 75 80

Leu Ala Gly Tyr Asp Leu Ser Ile Asp Asp  
85 90

<210> 159  
<211> 197  
<212> DNA  
<213> Streptococcus agalactiae

<400> 159  
atgagaacac tatttagaat gatatttgct attccaaagt ttatcttttag attgatttgg 60  
aatatcattt ggggaatatt caagacagtt cttgttattg cgattatttt atttggttg 120  
tattactatg cgaatcacag tcaatcagaa tttgctaata aacttagtga cattattcag 180  
acaggaaaaa cattttt 197

<210> 160  
<211> 65  
<212> PRT  
<213> Streptococcus agalactiae

<400> 160  
Met Arg Thr Leu Phe Arg Met Ile Phe Ala Ile Pro Lys Phe Ile Phe  
1 5 10 15  
Arg Leu Ile Trp Asn Ile Ile Trp Gly Ile Phe Lys Thr Val Leu Val  
20 25 30  
Ile Ala Ile Ile Leu Phe Gly Leu Tyr Tyr Tyr Ala Asn His Ser Gln  
35 40 45  
Ser Glu Phe Ala Asn Gln Leu Ser Asp Ile Ile Gln Thr Gly Lys Thr  
50 55 60  
Phe  
65

<210> 161  
<211> 153  
<212> DNA  
<213> Streptococcus agalactiae

<400> 161  
atgtcaaaaa aaataatatt aggaatttta tctcttttat ctgtcggttac tttggtggcg 60  
tgtggttcat cagacaaaca gctacaagat aaagttgaga aaaaaggga gttagtttta 120  
gcggtgagtc cagattatgc tccctttgag ttt 153

<210> 162  
<211> 51  
<212> PRT

<213> Streptococcus agalactiae

<400> 162

Met	Ser	Lys	Lys	Ile	Ile	Leu	Gly	Ile	Leu	Ser	Leu	Leu	Ser	Val	Val
1				5					10					15	
Thr	Leu	Val	Ala	Cys	Gly	Ser	Ser	Asp	Lys	Gln	Leu	Gln	Asp	Lys	Val
			20					25					30		
Glu	Lys	Lys	Gly	Lys	Leu	Val	Leu	Ala	Val	Ser	Pro	Asp	Tyr	Ala	Pro
		35					40					45			
Phe	Glu	Phe													
	50														

<210> 163

<211> 138

<212> DNA

<213> Streptococcus agalactiae

<400> 163

atgaaaaatc aaagactatt actgcttttt ggaggcttat taataatgat aatgatgaca	60
gcatgtaagg attcaaaaat cccagaaaac cgcacgaaaa aggaatacca ggcagaacag	120
aattttaagt catacttt	138

<210> 164

<211> 46

<212> PRT

<213> Streptococcus agalactiae

<400> 164

Met	Lys	Asn	Gln	Arg	Leu	Leu	Leu	Leu	Phe	Gly	Gly	Leu	Leu	Ile	Met
1				5					10					15	
Ile	Met	Met	Thr	Ala	Cys	Lys	Asp	Ser	Lys	Ile	Pro	Glu	Asn	Arg	Thr
			20					25					30		
Lys	Lys	Glu	Tyr	Gln	Ala	Glu	Gln	Asn	Phe	Lys	Ser	Tyr	Phe		
		35					40					45			

<210> 165

<211> 423

<212> DNA

<213> Streptococcus agalactiae

<400> 165

atgattggaa aattatatta tagctataga aagtcacgct tattaagaag tatttttatgg	60
cttatttttaa ttgttggtgt atatatgtta ggacaacgtg ttttattatc cactgttcct	120
ttatcacatc aagagataaa actagcagta gatcaacatt tactcaataa cttttcagca	180

gtaagtgggtg ggagtttttaa taaattaaat gttttcacac tgggggttgag tccatggatg 240  
tcaagtatga ttatttggag attcgtttcc ttattttcgt gggcaaaaaa tgcaacgaag 300  
cgaaaagcag aagtagctca atatacttta atgcttacta tctcagttat acaagcatat 360  
ggtgtttcag gaaatcaatt tataaaaagc tctttattag gttcttatag tgatattggt 420  
ttt 423

<210> 166  
<211> 141  
<212> PRT  
<213> Streptococcus agalactiae

<400> 166

Met Ile Gly Lys Leu Tyr Tyr Ser Tyr Arg Lys Ser Arg Leu Leu Arg  
1 5 10 15  
Ser Ile Leu Trp Leu Ile Leu Ile Val Gly Val Tyr Met Leu Gly Gln  
20 25 30  
Arg Val Leu Leu Ser Thr Val Pro Leu Ser His Gln Glu Ile Lys Leu  
35 40 45  
Ala Val Asp Gln His Leu Leu Asn Asn Phe Ser Ala Val Ser Gly Gly  
50 55 60  
Ser Phe Asn Lys Leu Asn Val Phe Thr Leu Gly Leu Ser Pro Trp Met  
65 70 75 80  
Ser Ser Met Ile Ile Trp Arg Phe Val Ser Leu Phe Ser Trp Ala Lys  
85 90 95  
Asn Ala Thr Lys Arg Lys Ala Glu Val Ala Gln Tyr Thr Leu Met Leu  
100 105 110  
Thr Ile Ser Val Ile Gln Ala Tyr Gly Val Ser Gly Asn Gln Phe Ile  
115 120 125  
Lys Ser Ser Leu Leu Gly Ser Tyr Ser Asp Ile Val Phe  
130 135 140

<210> 167  
<211> 348  
<212> DNA  
<213> Streptococcus agalactiae

<400> 167

atgaaagggtc tattggattt tttagttaat attgccagaa cgccagctat tttagtcgcc 60  
ttgatagcca ttatcggttt agtactgcag aaaaaagggtg ttcctgatat tgtaaaagggt 120  
ggaataaaaa catttggttg cttcttagtg gtttctgaag gtgcagggat agtccaaaat 180

tccttgaatc catttggaaa aatgtttgaa catgcttttc atttggtggg ggtagttcct	240
aataatgaag ccattgtagc agtagctctt acgaagtatg gctcagcaac tgctttgatt	300
atgttagcgg gaatgatttt taatatattta attgctcggt ttacaaaa	348

<210> 168  
 <211> 116  
 <212> PRT  
 <213> Streptococcus agalactiae

<400> 168

Met Lys Gly Leu Leu Asp Phe Leu Val Asn Ile Ala Arg Thr Pro Ala	
1 5 10 15	
Ile Leu Val Ala Leu Ile Ala Ile Ile Gly Leu Val Leu Gln Lys Lys	
20 25 30	
Gly Val Pro Asp Ile Val Lys Gly Gly Ile Lys Thr Phe Val Gly Phe	
35 40 45	
Leu Val Val Ser Glu Gly Ala Gly Ile Val Gln Asn Ser Leu Asn Pro	
50 55 60	
Phe Gly Lys Met Phe Glu His Ala Phe His Leu Val Gly Val Val Pro	
65 70 75 80	
Asn Asn Glu Ala Ile Val Ala Val Ala Leu Thr Lys Tyr Gly Ser Ala	
85 90 95	
Thr Ala Leu Ile Met Leu Ala Gly Met Ile Phe Asn Ile Leu Ile Ala	
100 105 110	
Arg Phe Thr Lys	
115	

<210> 169  
 <211> 464  
 <212> DNA  
 <213> Streptococcus agalactiae

<400> 169

ttggttggta agccccaatt actatatttta gatgaaccta cttccggaat ggatacttcc	60
acacgtcaac gatttttgaa gctggttgcy acactaaaaa aagaaggtga cacaattgtc	120
tattctagtc attatatcga agaggtagaa catacagctg ataggatttt agtacttcat	180
aaaggaaagt tattacgcga tacaaccccc ttgccatga agcaagaaaa aaccgaaaag	240
ttattcaccg ttccgcttag ttatcaaaaa ttattaccta cctattttgat tacagagtgt	300
gaagccaaga gtgatagtat aacgtttggt actggggagg ctgaaactgt atggaaaata	360
ctggcagata atggttggtcc tattgaagct attgagatga ccaatagaac ttgtttaaat	420

cgtatttttg agactactaa ggaggtaaaa catgagaatc tttta

464

<210> 170  
<211> 154  
<212> PRT  
<213> Streptococcus agalactiae

<400> 170

Met Val Gly Lys Pro Gln Leu Leu Phe Leu Asp Glu Pro Thr Ser Gly  
1 5 10 15

Met Asp Thr Ser Thr Arg Gln Arg Phe Trp Lys Leu Val Ala Thr Leu  
20 25 30

Lys Lys Glu Gly Asp Thr Ile Val Tyr Ser Ser His Tyr Ile Glu Glu  
35 40 45

Val Glu His Thr Ala Asp Arg Ile Leu Val Leu His Lys Gly Lys Leu  
50 55 60

Leu Arg Asp Thr Thr Pro Phe Ala Met Lys Gln Glu Lys Thr Glu Lys  
65 70 75 80

Leu Phe Thr Val Pro Leu Ser Tyr Gln Lys Leu Leu Pro Thr Tyr Leu  
85 90 95

Ile Thr Glu Cys Glu Ala Lys Ser Asp Ser Ile Thr Phe Val Thr Gly  
100 105 110

Glu Ala Glu Thr Val Trp Lys Ile Leu Ala Asp Asn Gly Cys Pro Ile  
115 120 125

Glu Ala Ile Glu Met Thr Asn Arg Thr Leu Leu Asn Arg Ile Phe Glu  
130 135 140

Thr Thr Lys Glu Val Lys His Glu Asn Leu  
145 150

<210> 171  
<211> 360  
<212> DNA  
<213> Streptococcus agalactiae

<400> 171

ttgaaaaaat ccaagagaag ccgtaaggca gtgacaacaa gtggtgagaa gactttactt 60

gaggatttgg caaaaatgaa tttcctagac gaagtcatta atgttatggt tttatatacc 120

ttgaataaga caaaatctgc taacttaaata aaggcctata tcatgaaagt tgctaatagat 180

tttgcctttc agaatgttat gacggccgaa gatgctgtgc ttaaaattcg tgatttttca 240

gatcaaaaag taaggactaa aacagaaacg aagaagaaac aatcgaatgt tcctgaatgg 300

agtaatcctg attataaaga tgaggtagc ccagaaaaag aaattgaatt agaacagttt 360

<210> 172  
<211> 120  
<212> PRT  
<213> Streptococcus agalactiae

<400> 172

Met	Lys	Lys	Ser	Lys	Arg	Ser	Arg	Lys	Ala	Val	Thr	Thr	Ser	Gly	Glu
1				5					10					15	
Lys	Thr	Leu	Leu	Glu	Asp	Leu	Ala	Lys	Met	Asn	Phe	Leu	Asp	Glu	Val
			20					25					30		
Ile	Asn	Val	Met	Val	Leu	Tyr	Thr	Leu	Asn	Lys	Thr	Lys	Ser	Ala	Asn
		35					40					45			
Leu	Asn	Lys	Ala	Tyr	Ile	Met	Lys	Val	Ala	Asn	Asp	Phe	Ala	Phe	Gln
	50					55					60				
Asn	Val	Met	Thr	Ala	Glu	Asp	Ala	Val	Leu	Lys	Ile	Arg	Asp	Phe	Ser
65					70					75					80
Asp	Gln	Lys	Val	Arg	Thr	Lys	Thr	Glu	Thr	Lys	Lys	Lys	Gln	Ser	Asn
				85				90						95	
Val	Pro	Glu	Trp	Ser	Asn	Pro	Asp	Tyr	Lys	Asp	Glu	Val	Ser	Pro	Glu
			100					105					110		
Lys	Glu	Ile	Glu	Leu	Glu	Gln	Phe								
		115					120								

<210> 173  
<211> 216  
<212> DNA  
<213> Streptococcus agalactiae

<400> 173

atgacgaatc atattactaa actgatagaa aatagcggaa aaaaattgac agaaattagc	60
gaagctacag atatagccta tcctacactt tctggataca atcaaggaat ccgcaaacct	120
aaaaaagata atgctgaaaa attggcaaaa tactttaatg tttccgtcgc ttacattatg	180
ggacttgata gcaaccacaca tgctccatca aatctt	216

<210> 174  
<211> 72  
<212> PRT  
<213> Streptococcus agalactiae

<400> 174

Met Thr Asn His Ile Thr Lys Leu Ile Glu Asn Ser Gly Lys Lys Leu

1	5	10	15
Thr Glu Ile Ser Glu Ala Thr Asp Ile Ala Tyr Pro Thr Leu Ser Gly	20	25	30
Tyr Asn Gln Gly Ile Arg Lys Pro Lys Lys Asp Asn Ala Glu Lys Leu	35	40	45
Ala Lys Tyr Phe Asn Val Ser Val Ala Tyr Ile Met Gly Leu Asp Ser	50	55	60
Asn Pro His Ala Pro Ser Asn Leu	65	70	

<210> 175  
 <211> 337  
 <212> DNA  
 <213> Streptococcus agalactiae

<400> 175  
 ttgatgaaaa ggaataaaca ttaccgta acagaaacta cctattatat tttattagct 60  
 ttgtttgagg aagcgcattg ctatgctatt atgaaaaaag ttgaagaaat gaggggcggg 120  
 gatgtagaa tagccgcagg gacaatgtac ggtgccattg aaaatttact taaacaaaaa 180  
 tggataaagt ctatctcaag tgacgataga agaagaaaag tttatattat tactgagaca 240  
 ggaaaagaaa tagtagaact tgaaacgaat cgattaagaa agttacttaa tactgctaata 300  
 cagttggggtt ttggaggaga tggttatgat aaagttt 337

<210> 176  
 <211> 112  
 <212> PRT  
 <213> Streptococcus agalactiae

<400> 176

Met Met Lys Arg Asn Lys His Leu Pro Leu Thr Glu Thr Thr Tyr Tyr	1	5	10	15
Ile Leu Leu Ala Leu Phe Glu Glu Ala His Gly Tyr Ala Ile Met Lys	20	25	30	
Lys Val Glu Glu Met Ser Gly Gly Asp Val Arg Ile Ala Ala Gly Thr	35	40	45	
Met Tyr Gly Ala Ile Glu Asn Leu Leu Lys Gln Lys Trp Ile Lys Ser	50	55	60	
Ile Ser Ser Asp Asp Arg Arg Arg Lys Val Tyr Ile Ile Thr Glu Thr	65	70	75	80
Gly Lys Glu Ile Val Glu Leu Glu Thr Asn Arg Leu Arg Lys Leu Leu	85	90	95	

Asn Thr Ala Asn Gln Leu Gly Phe Gly Gly Asp Gly Tyr Asp Lys Val  
100 105 110

<210> 177  
<211> 511  
<212> DNA  
<213> Streptococcus agalactiae

<400> 177  
cccattactg gtgagttaat agctgagaaa ttaggagtac caagagcagc actaaggtct 60  
gatttgcggg ttttaagtat gctaggtatc atagatgcaa aacctaaggt tggttatttt 120  
tatttaggac agtatcatgc ttcaataggg acaagtcatt ttgaaaagat gacagtttca 180  
gaaattatgg ggatccttct gacagttcat caaaaagatt cagtttatga tggtattgta 240  
catattttta tggaagatgc tggttgtgct tttatcttgg atgatgatga ttttctctgt 300  
ggagtcgtgt cacgtaaaga ttactaaaa accagtattg gcggaggaga tctttctaaa 360  
atgccaatag gaatggtgat gacacgtatg ccacacgtga caactgtttt agaaaatgaa 420  
agtctttttg cggcagctga taaattagtg agcagaaaag tggatagtct ccctgtcgtt 480  
cgtcatgata agcaatatcc cgaaaaattt a 511

<210> 178  
<211> 170  
<212> PRT  
<213> Streptococcus agalactiae

<400> 178  
Pro Ile Thr Gly Glu Leu Ile Ala Glu Lys Leu Gly Val Pro Arg Ala  
1 5 10 15  
Ala Leu Arg Ser Asp Leu Arg Val Leu Ser Met Leu Gly Ile Ile Asp  
20 25 30  
Ala Lys Pro Lys Val Gly Tyr Phe Tyr Leu Gly Gln Tyr His Ala Ser  
35 40 45  
Ile Gly Thr Ser His Phe Glu Lys Met Thr Val Ser Glu Ile Met Gly  
50 55 60  
Ile Leu Leu Thr Val His Gln Lys Asp Ser Val Tyr Asp Val Ile Val  
65 70 75 80  
His Ile Phe Met Glu Asp Ala Gly Cys Ala Phe Ile Leu Asp Asp Asp  
85 90 95  
Asp Phe Leu Cys Gly Val Val Ser Arg Lys Asp Leu Leu Lys Thr Ser  
100 105 110

Ile Gly Gly Gly Asp Leu Ser Lys Met Pro Ile Gly Met Val Met Thr  
115 120 125

Arg Met Pro His Val Thr Thr Val Leu Glu Asn Glu Ser Leu Phe Ala  
130 135 140

Ala Ala Asp Lys Leu Val Ser Arg Lys Val Asp Ser Leu Pro Val Val  
145 150 155 160

Arg His Asp Lys Gln Tyr Pro Glu Lys Phe  
165 170

<210> 179  
<211> 233  
<212> DNA  
<213> Streptococcus agalactiae

<400> 179  
ttggaagtca tcatgcaatt tatttatagt attattggta ttttattggt attaggaatt 60  
gtgtatgcaa tttctttcaa tcgtaagagt gtttctctaa gtttaattgg aaaagctctt 120  
atcgttcaat tcattattgc gctaacttta gtacgtatcc cactaggcca acaagttggt 180  
agtgttggtt caactggagt tactaaagta atcaactgtg gtcaagctgg ttt 233

<210> 180  
<211> 77  
<212> PRT  
<213> Streptococcus agalactiae

<400> 180

Met Glu Val Ile Met Gln Phe Ile Tyr Ser Ile Ile Gly Ile Leu Leu  
1 5 10 15

Val Leu Gly Ile Val Tyr Ala Ile Ser Phe Asn Arg Lys Ser Val Ser  
20 25 30

Leu Ser Leu Ile Gly Lys Ala Leu Ile Val Gln Phe Ile Ile Ala Leu  
35 40 45

Ile Leu Val Arg Ile Pro Leu Gly Gln Gln Val Val Ser Val Val Ser  
50 55 60

Thr Gly Val Thr Lys Val Ile Asn Cys Gly Gln Ala Gly  
65 70 75

<210> 181  
<211> 344  
<212> DNA  
<213> Streptococcus agalactiae

<400> 181  
caacctaata aagctttaga aagtgatgag attgatatta atgctttcca gcattataat 60

tacttaacca attggaataa agcaaataag accaatcttg tttccggtgc tgagacatac 120  
 tttacttcct ttagattata ctctggtact aagaacggta aaggtaaata ccaaacagtt 180  
 tctgaaattc caaataaagc aactattact atcccaaacg atgcagttaa cgaaagtcgc 240  
 tctctctact tgttacaatc agcaggcttg ctaaaattga aagtatcagg tgatacatta 300  
 gcaacaatgt cagatgttgt ttccaatcct aaatctttag attt 344

<210> 182  
 <211> 114  
 <212> PRT  
 <213> Streptococcus agalactiae

<400> 182

Gln Pro Asn Lys Ala Leu Glu Ser Asp Glu Ile Asp Ile Asn Ala Phe  
 1 5 10 15  
 Gln His Tyr Asn Tyr Leu Thr Asn Trp Asn Lys Ala Asn Lys Thr Asn  
 20 25 30  
 Leu Val Ser Val Ala Glu Thr Tyr Phe Thr Ser Phe Arg Leu Tyr Ser  
 35 40 45  
 Gly Thr Lys Asn Gly Lys Gly Lys Tyr Gln Thr Val Ser Glu Ile Pro  
 50 55 60  
 Asn Lys Ala Thr Ile Thr Ile Pro Asn Asp Ala Val Asn Glu Ser Arg  
 65 70 75 80  
 Ser Leu Tyr Leu Leu Gln Ser Ala Gly Leu Leu Lys Leu Lys Val Ser  
 85 90 95  
 Gly Asp Thr Leu Ala Thr Met Ser Asp Val Val Ser Asn Pro Lys Ser  
 100 105 110

Leu Asp

<210> 183  
 <211> 264  
 <212> DNA  
 <213> Streptococcus agalactiae

<400> 183

atgaaatgta taataaataa tataaataaa ataaaaatga taattgagat ttatcataga 60  
 aggaaaacta ttttgaaatt aaataaaatc atattatcta ctgcagctct tactgctctc 120  
 tttttaggat ataatagcgt tactgcggat acatataata actatcagcc acatagatca 180  
 aataatatgg atttaactga ggaatataac tataataacc agatagaact tcaggagcgt 240  
 ataaaaaacc taaatatacc tttt 264

<210> 184  
 <211> 88  
 <212> PRT  
 <213> Streptococcus agalactiae

<400> 184

Met	Lys	Cys	Ile	Ile	Asn	Asn	Ile	Asn	Lys	Ile	Lys	Met	Ile	Ile	Glu
1				5				10						15	
Ile	Tyr	His	Arg	Arg	Lys	Thr	Ile	Leu	Lys	Leu	Asn	Lys	Ile	Ile	Leu
			20					25					30		
Ser	Thr	Ala	Ala	Leu	Thr	Ala	Leu	Phe	Leu	Gly	Tyr	Asn	Ser	Val	Thr
		35					40					45			
Ala	Asp	Thr	Tyr	Asn	Asn	Tyr	Gln	Pro	His	Arg	Ser	Asn	Asn	Met	Asp
	50					55					60				
Leu	Thr	Glu	Glu	Tyr	Asn	Tyr	Asn	Asn	Gln	Ile	Glu	Leu	Gln	Glu	Arg
65					70					75					80
Ile	Lys	Asn	Leu	Asn	Ile	Pro	Phe								
				85											

<210> 185  
 <211> 926  
 <212> DNA  
 <213> Streptococcus agalactiae

<400> 185

ttgggtgatt attatggtaa gaaatatttt ggtgaggcag ctaaaaaaga cgtcgaacat	60
atggctaaga aaatcattaa tgtctataaa acacgggttaa aaaacaacac ttgggttatca	120
gaaaatacaa aagcaatggc cattaagaaa cttgataaca tgagattaat gattggctat	180
ccagaagatt atcctgatct ttatcgtcag taccaatttg atagtaaagc aagcttcttt	240
gaaaacaatg ataactacag aaaattatcg aacaagaaaa catttgaaga atttaaccag	300
tctaatacaac gtgaacattg gcaaatgagt gccaatgctg taaatgctta taatgatcct	360
aataccaatt ccatagtctt tccagcagcg atttttcaat caccactgta cgataaaact	420
aaaacagtta gtcaaaatta tggagctatc ggagcaatta ttgggtcatga aatttcacac	480
tcatttgata ttaatgggtat gaaatatgac gagaaagga atcttcacga ttggtggact	540
aaagaagatt taaatcatta taagaaatca acacaagcta tgattgacca atgggatggc	600
cttaaagcag atggcggttaa agttgatggg aaattaactt tagcagaaaa tattgcagat	660
aatgggtggtg ttatggcatc tctagaagct cttaagactg aaaaaatcca aactataaag	720

aattttttga atcatgggca agtatttggc gtcaaaaagc aaccaaagaa caaagtaagt	780
cctcaattca gtcagatggt catgcaccat atgaattgag agctaacatc ccagtacgta	840
atttccaaga attttatgat gcctttggtg ttaaaaaagg cgattcaatg tatctaaaac	900
cagaaaaacg tttgacactt tggtaa	926

<210> 186  
 <211> 271  
 <212> PRT  
 <213> Streptococcus agalactiae

<400> 186

Met Gly Asp Tyr Tyr Gly Lys Lys Tyr Phe Gly Glu Ala Ala Lys Lys	1	5	10	15
Asp Val Glu His Met Ala Lys Lys Ile Ile Asn Val Tyr Lys Thr Arg		20	25	30
Leu Lys Asn Asn Thr Trp Leu Ser Glu Asn Thr Lys Ala Met Ala Ile		35	40	45
Lys Lys Leu Asp Asn Met Arg Leu Met Ile Gly Tyr Pro Asp Tyr Pro		50	55	60
Asp Leu Tyr Arg Gln Tyr Gln Phe Asp Ser Lys Ala Ser Phe Phe Glu	65	70	75	80
Asn Asn Asp Asn Tyr Arg Lys Leu Ser Asn Lys Lys Thr Phe Glu Glu		85	90	95
Phe Asn Gln Ser Asn Gln Arg Glu His Trp Gln Met Ser Ala Asn Ala		100	105	110
Val Asn Ala Tyr Asn Asp Pro Asn Thr Asn Ser Ile Val Phe Pro Ala		115	120	125
Ala Ile Phe Gln Ser Pro Leu Tyr Asp Lys Thr Lys Thr Val Ser Gln		130	135	140
Asn Tyr Gly Ala Ile Gly Ala Ile Ile Gly His Glu Ile Ser His Ser	145	150	155	160
Phe Asp Ile Asn Gly Met Lys Tyr Asp Glu Lys Gly Asn Leu His Asp		165	170	175
Trp Trp Thr Lys Glu Asp Leu Asn His Tyr Lys Lys Ser Thr Gln Ala		180	185	190
Met Ile Asp Gln Trp Asp Gly Leu Lys Ala Asp Gly Gly Lys Val Asp		195	200	205
Gly Lys Leu Thr Leu Ala Glu Asn Ile Ala Asp Asn Gly Gly Val Met		210	215	220

Ala Ser Leu Glu Ala Leu Lys Thr Glu Lys Ile Gln Thr Ile Lys Asn  
 225 230 235 240

Phe Leu Asn His Gly Gln Val Phe Gly Val Lys Lys Gln Pro Lys Asn  
 245 250 255

Lys Val Ser Pro Gln Phe Ser Gln Met Phe Met His His Met Asn  
 260 265 270

<210> 187  
 <211> 636  
 <212> DNA  
 <213> Streptococcus agalactiae

<400> 187  
 atgaccatga ttacgccaaag cttcattaag gtatctctag atgaaacaaa tcgtatgatg 60  
 cgtatgatat cagatttatt aagtttatcg cgcattgata atgaagtaac gcatttagat 120  
 gttgaaatga cgaattttac agctttcatg acctcaattt tgaatcgatt tgatcagatt 180  
 agaaatcaaa aaacagtcac aggaaaagtt tatgaaattg tcagagatta tcctcttaag 240  
 tcaatttggg tggaaattga tacagataag atgactcaag tgattgataa cattttaaat 300  
 aatgcagtca agtattcacc agatgggtggg aagattacag ttaatctacg cacaactaaa 360  
 acgcagatga ttttatcaat atcagaccaa ggcttaggta ttcccaaaaa agatttacct 420  
 ctcatttttg atcgttttta tcgtgttgat aaggcgagaa gtcgtcaaca ggggtgggact 480  
 ggacttgggt tgtcaattgc aaaagaaatt gttaagcagc ataagggatt tatttgggct 540  
 aagagtgagt atggtaaagg gtctactttt acaatcgtct tgccttatga taaagatgct 600  
 gtaacttatg aagaatggga ggacgttgaa gattaa 636

<210> 188  
 <211> 211  
 <212> PRT  
 <213> Streptococcus agalactiae

<400> 188

Met Thr Met Ile Thr Pro Ser Phe Ile Lys Val Ser Leu Asp Glu Thr  
 1 5 10 15

Asn Arg Met Met Arg Met Ile Ser Asp Leu Leu Ser Leu Ser Arg Ile  
 20 25 30

Asp Asn Glu Val Thr His Leu Asp Val Glu Met Thr Asn Phe Thr Ala  
 35 40 45

Phe Met Thr Ser Ile Leu Asn Arg Phe Asp Gln Ile Arg Asn Gln Lys  
 50 55 60

Thr Val Thr Gly Lys Val Tyr Glu Ile Val Arg Asp Tyr Pro Leu Lys  
65 70 75 80

Ser Ile Trp Val Glu Ile Asp Thr Asp Lys Met Thr Gln Val Ile Asp  
85 90 95

Asn Ile Leu Asn Asn Ala Val Lys Tyr Ser Pro Asp Gly Gly Lys Ile  
100 105 110

Thr Val Asn Leu Arg Thr Thr Lys Thr Gln Met Ile Leu Ser Ile Ser  
115 120 125

Asp Gln Gly Leu Gly Ile Pro Lys Lys Asp Leu Pro Leu Ile Phe Asp  
130 135 140

Arg Phe Tyr Arg Val Asp Lys Ala Arg Ser Arg Gln Gln Gly Gly Thr  
145 150 155 160

Gly Leu Gly Leu Ser Ile Ala Lys Glu Ile Val Lys Gln His Lys Gly  
165 170 175

Phe Ile Trp Ala Lys Ser Glu Tyr Gly Lys Gly Ser Thr Phe Thr Ile  
180 185 190

Val Leu Pro Tyr Asp Lys Asp Ala Val Thr Tyr Glu Glu Trp Glu Asp  
195 200 205

Val Glu Asp  
210

<210> 189  
<211> 1236  
<212> DNA  
<213> Streptococcus agalactiae

<400> 189  
ttgaaaaaaa ttattacttc tattctatta cttagttgca ttttttttat gccaaccatc 60  
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aaaatcttgt atgaaaaaga tgctaacaaa cccgctgcta ttgcttcctt gactaaaata 180  
atgaccgttt atatggtcta taaagaaatt gataacggta acctcaagtg gaatacaaaa 240  
gtaaatatat ctgactaccc ttatcaacta acacgcgaat ctgatgctag taatgttcct 300  
ttagaaaaaa ggcgctatac tgttaaacaa ctcgtggacg ctgccatgat ttctagtgct 360  
aacagtgcag ccattgcttt agctgaacat atttcaggaa ctgaaagtaa atttgttgat 420  
aaaatgactg ctcaattgga aaagtgggga attcatgata gccacctagt caatgcttct 480  
ggcttaaata atagtatggt aggcaatcac atttatccaa aatcgtcaca aaacgacgaa 540  
aataaaatga gtgcacgtga tattgctatt gctgcctacc atttggtcaa cgaatatacct 600

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tccattctta agattactag taagtccggt gctaaatttg ataaagatat tatgcattct 660
tataactaca tgctaccaga tatgcctgtc tttagaccag gtattacagg tttgaaaact 720
gggacaacgg aattagctgg ccaatctttt attgctacat ctactgaaag tggaatgaga 780
ctactcactg ttattatgca tgctgataag gccgataaag acaaatatgc tcgctttaca 840
gcaactaact ctctcttgaa ctatatcaca aacacctacg aacctaacct tgtattagct 900
aaaggagctg catataaagg taaagaagca agtgtgagag acggaaaaga acaatcggtc 960
atcgctgttg ctaaaaacga tttgaaagta gtacagaaga aaaatatcac taaacaaaat 1020
cagttaaaaa ttaactttta aaaagagctt actgctccta ttacaaaaaa agagaaccta 1080
gggaaagctt attacgttga ccttaataag gttggaaaag gctatctcat aaaggaacct 1140
agcggttcatt tagtggcaaa agatagtatt gagcgcagtt tcttcctcaa agtgtggtgg 1200
aatcattttg tgcgctacgt taacgaaaaa ctttaa 1236

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<210> 190
<211> 411
<212> PRT
<213> Streptococcus agalactiae

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<400> 190

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Met Lys Lys Ile Ile Thr Ser Ile Leu Leu Leu Ser Cys Ile Phe Phe
1           5           10           15
Met Pro Thr Ile Ser Ala Glu Ser Phe Asn Ala Ser Ala Lys His Ala
          20           25           30
Leu Ala Val Asp Leu Asp Ser Gly Lys Ile Leu Tyr Glu Lys Asp Ala
          35           40           45
Asn Lys Pro Ala Ala Ile Ala Ser Leu Thr Lys Ile Met Thr Val Tyr
          50           55           60
Met Val Tyr Lys Glu Ile Asp Asn Gly Asn Leu Lys Trp Asn Thr Lys
65           70           75           80
Val Asn Ile Ser Asp Tyr Pro Tyr Gln Leu Thr Arg Glu Ser Asp Ala
          85           90           95
Ser Asn Val Pro Leu Glu Lys Arg Arg Tyr Thr Val Lys Gln Leu Val
          100          105          110
Asp Ala Ala Met Ile Ser Ser Ala Asn Ser Ala Ala Ile Ala Leu Ala
          115          120          125
Glu His Ile Ser Gly Thr Glu Ser Lys Phe Val Asp Lys Met Thr Ala
          130          135          140

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Gln Leu Glu Lys Trp Gly Ile His Asp Ser His Leu Val Asn Ala Ser  
 145 150 155 160  
 Gly Leu Asn Asn Ser Met Leu Gly Asn His Ile Tyr Pro Lys Ser Ser  
 165 170 175  
 Gln Asn Asp Glu Asn Lys Met Ser Ala Arg Asp Ile Ala Ile Ala Ala  
 180 185 190  
 Tyr His Leu Val Asn Glu Tyr Pro Ser Ile Leu Lys Ile Thr Ser Lys  
 195 200 205  
 Ser Val Ala Lys Phe Asp Lys Asp Ile Met His Ser Tyr Asn Tyr Met  
 210 215 220  
 Leu Pro Asp Met Pro Val Phe Arg Pro Gly Ile Thr Gly Leu Lys Thr  
 225 230 235 240  
 Gly Thr Thr Glu Leu Ala Gly Gln Ser Phe Ile Ala Thr Ser Thr Glu  
 245 250 255  
 Ser Gly Met Arg Leu Leu Thr Val Ile Met His Ala Asp Lys Ala Asp  
 260 265 270  
 Lys Asp Lys Tyr Ala Arg Phe Thr Ala Thr Asn Ser Leu Leu Asn Tyr  
 275 280 285  
 Ile Thr Asn Thr Tyr Glu Pro Asn Leu Val Leu Ala Lys Gly Ala Ala  
 290 295 300  
 Tyr Lys Gly Lys Glu Ala Ser Val Arg Asp Gly Lys Glu Gln Ser Val  
 305 310 315 320  
 Ile Ala Val Ala Lys Asn Asp Leu Lys Val Val Gln Lys Lys Asn Ile  
 325 330 335  
 Thr Lys Gln Asn Gln Leu Lys Ile Asn Phe Lys Lys Glu Leu Thr Ala  
 340 345 350  
 Pro Ile Thr Lys Lys Glu Asn Leu Gly Lys Ala Tyr Tyr Val Asp Leu  
 355 360 365  
 Asn Lys Val Gly Lys Gly Tyr Leu Ile Lys Glu Pro Ser Val His Leu  
 370 375 380  
 Val Ala Lys Asp Ser Ile Glu Arg Ser Phe Phe Leu Lys Val Trp Trp  
 385 390 395 400  
 Asn His Phe Val Arg Tyr Val Asn Glu Lys Leu  
 405 410

<210> 191

<211> 771

<212> DNA

<213> Streptococcus agalactiae

<400> 191

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atgacgcttc gagaattaac aatagaagaa tttaaagaac attcaggaaa ttatgattca      60
caatcatttt tacaacacc tgagatggct aaacttttag aaaaacgcgg ctatgatggt      120
aggtatttgg gatatcaagt agaaaataaa ctagagataa tcagtttatc ttatattatg      180
ccagtcactg gtggttttca aatgaaaatt gattcaggac cagttcattc aaattctaag      240
tatctaaaac aattttataa agcattgcaa ggctatgcca aatccaacgg tgttctagaa      300
ttaatagttg agccttttga tgattaccaa ttattcacta gttcgggagt tcctagtaat      360
cagggaaatg ataatctgat tgaagatttt accagttcag gttatcacca tgatggttta      420
acaactgggt ttactggtaa atatttatct tggcactatg ttaaaaattt agaaggtgtc      480
acttctgaaa cgttactatc ttcattctct aagacaggac gagctttggg taagaaagca      540
atgtcttttg gaatcaagggt tcgcgttctt aaacgtgatg agctacattt atttaaagag      600
ataacaactt ctacgtcaaa tagacgtgat tatatggata agtccttaga ttattatcaa      660
gatttttacg atagctttga aggcaaggct gaatttgtga ttgccacttt aaattttaga      720
gaatacgacc ataacttgca aataaaagct gaagcattgg aaaataagct t              771

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<210> 192
<211> 257
<212> PRT
<213> Streptococcus agalactiae

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<400> 192

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Met Thr Leu Arg Glu Leu Thr Ile Glu Glu Phe Lys Glu His Ser Gly
1              5              10              15
Asn Tyr Asp Ser Gln Ser Phe Leu Gln Thr Pro Glu Met Ala Lys Leu
                20              25              30
Leu Glu Lys Arg Gly Tyr Asp Val Arg Tyr Leu Gly Tyr Gln Val Glu
                35              40              45
Asn Lys Leu Glu Ile Ile Ser Leu Ser Tyr Ile Met Pro Val Thr Gly
                50              55              60
Gly Phe Gln Met Lys Ile Asp Ser Gly Pro Val His Ser Asn Ser Lys
65              70              75              80
Tyr Leu Lys Gln Phe Tyr Lys Ala Leu Gln Gly Tyr Ala Lys Ser Asn
                85              90              95
Gly Val Leu Glu Leu Ile Val Glu Pro Phe Asp Asp Tyr Gln Leu Phe
                100             105             110
Thr Ser Ser Gly Val Pro Ser Asn Gln Gly Asn Asp Asn Leu Ile Glu
                115             120             125

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Asp	Phe	Thr	Ser	Ser	Gly	Tyr	His	His	Asp	Gly	Leu	Thr	Thr	Gly	Phe	
130						135					140					
Thr	Gly	Lys	Tyr	Leu	Ser	Trp	His	Tyr	Val	Lys	Asn	Leu	Glu	Gly	Val	
145					150					155					160	
Thr	Ser	Glu	Thr	Leu	Leu	Ser	Ser	Phe	Ser	Lys	Thr	Gly	Arg	Ala	Leu	
				165					170					175		
Val	Lys	Lys	Ala	Met	Ser	Phe	Gly	Ile	Lys	Val	Arg	Val	Leu	Lys	Arg	
			180					185					190			
Asp	Glu	Leu	His	Leu	Phe	Lys	Glu	Ile	Thr	Thr	Ser	Thr	Ser	Asn	Arg	
	195						200					205				
Arg	Asp	Tyr	Met	Asp	Lys	Ser	Leu	Asp	Tyr	Tyr	Gln	Asp	Phe	Tyr	Asp	
	210					215					220					
Ser	Phe	Glu	Gly	Lys	Ala	Glu	Phe	Val	Ile	Ala	Thr	Leu	Asn	Phe	Arg	
225					230					235					240	
Glu	Tyr	Asp	His	Asn	Leu	Gln	Ile	Lys	Ala	Glu	Ala	Leu	Glu	Asn	Lys	
				245					250					255		

Leu

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<210> 193
<211> 534
<212> DNA
<213> Streptococcus agalactiae

<400> 193
ttgtcattaa gtttggttgc agtggttaaatt cttatccctc ctaaaatcat gggatcagtt      60
attgatgcta ttacaactgg aaaattaaca agaccacaat tactatggaa tttattaggt      120
ttggttttgt cagcttttagc tatgtatggg ctgcgttata tttggcgtat gtatatTTTA      180
gggacttctt acaaattagg ccaagttgtc agataccggt tatttgaaca ttttacaaaa      240
atgtctcctt ctttttatca gaaatatcgt acaggtgatt taatggcgca cgcgaccaac      300
gacatcaatt ctctaacacg tcttgcagga ggaggagtta tgtcagcagt ggatgcctct      360
atcacagcat tagtaacgct tatcaccatg ttctttacta tttcgtggca aatgacatta      420
attgcggtta tccctttgcc cttaatggcc ttagcactag taaattgggg cgaaaaaccc      480
atgaaacctt caaagaatct caggcagccc ttttcagaat taaataataa agtg          534

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<210> 194
<211> 178
<212> PRT
<213> Streptococcus agalactiae

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<400> 194

Met Ser Leu Ser Leu Val Ala Val Leu Asn Leu Ile Pro Pro Lys Ile  
1 5 10 15

Met Gly Ser Val Ile Asp Ala Ile Thr Thr Gly Lys Leu Thr Arg Pro  
20 25 30

Gln Leu Leu Trp Asn Leu Leu Gly Leu Val Leu Ser Ala Leu Ala Met  
35 40 45

Tyr Gly Leu Arg Tyr Ile Trp Arg Met Tyr Ile Leu Gly Thr Ser Tyr  
50 55 60

Lys Leu Gly Gln Val Val Arg Tyr Arg Leu Phe Glu His Phe Thr Lys  
65 70 75 80

Met Ser Pro Ser Phe Tyr Gln Lys Tyr Arg Thr Gly Asp Leu Met Ala  
85 90 95

His Ala Thr Asn Asp Ile Asn Ser Leu Thr Arg Leu Ala Gly Gly Gly  
100 105 110

Val Met Ser Ala Val Asp Ala Ser Ile Thr Ala Leu Val Thr Leu Ile  
115 120 125

Thr Met Phe Phe Thr Ile Ser Trp Gln Met Thr Leu Ile Ala Val Ile  
130 135 140

Pro Leu Pro Leu Met Ala Leu Ala Leu Val Asn Trp Gly Glu Lys Pro  
145 150 155 160

Met Lys Pro Ser Lys Asn Leu Arg Gln Pro Phe Ser Glu Leu Asn Asn  
165 170 175

Lys Val

<210> 195

<211> 440

<212> DNA

<213> Streptococcus agalactiae

<400> 195

atgcatattg agactgttat tgatttcaaa gaattaggaa aaagatatcg ttttaaaaat 60

cctacaaaag aattaatagc tgatacttta gaacaagtct tagaagtgat aaaagaagtt 120

gattattatc aatctcaaaa ttattatggt gttgggttatt tatcttatga agcatctgct 180

gcttttgatt cacatttttaa agtttctcaa cagaagttgg ctggagaaca tctagcttat 240

tttacagtac ataaagattg tgagaacgaa gcttttcctt taagttatga aaatgtaga 300

ttagcagata attggactgc taatgtttct gagcaagaat atcaagaggc aattgcta 360

attaaaggac aaattagaca aggaaatact tatcaagtaa attatacact agagcttagc 420  
 caacaattat gctcggatcc 440

<210> 196  
 <211> 146  
 <212> PRT  
 <213> Streptococcus agalactiae  
 <400> 196

Met	His	Ile	Glu	Thr	Val	Ile	Asp	Phe	Lys	Glu	Leu	Gly	Lys	Arg	Tyr
1				5					10					15	
Arg	Phe	Lys	Asn	Pro	Thr	Lys	Glu	Leu	Ile	Ala	Asp	Thr	Leu	Glu	Gln
			20					25					30		
Val	Leu	Glu	Val	Ile	Lys	Glu	Val	Asp	Tyr	Tyr	Gln	Ser	Gln	Asn	Tyr
		35					40					45			
Tyr	Val	Val	Gly	Tyr	Leu	Ser	Tyr	Glu	Ala	Ser	Ala	Ala	Phe	Asp	Ser
	50					55					60				
His	Phe	Lys	Val	Ser	Gln	Gln	Lys	Leu	Ala	Gly	Glu	His	Leu	Ala	Tyr
65					70					75					80
Phe	Thr	Val	His	Lys	Asp	Cys	Glu	Asn	Glu	Ala	Phe	Pro	Leu	Ser	Tyr
			85						90					95	
Glu	Asn	Val	Arg	Leu	Ala	Asp	Asn	Trp	Thr	Ala	Asn	Val	Ser	Glu	Gln
			100					105					110		
Glu	Tyr	Gln	Glu	Ala	Ile	Ala	Asn	Ile	Lys	Gly	Gln	Ile	Arg	Gln	Gly
		115					120					125			
Asn	Thr	Tyr	Gln	Val	Asn	Tyr	Thr	Leu	Glu	Leu	Ser	Gln	Gln	Leu	Cys
	130					135					140				
Ser	Asp														
145															

<210> 197  
 <211> 1119  
 <212> DNA  
 <213> Streptococcus agalactiae

<400> 197  
 gtgaataata tgttttatct caaaatagcc tggcataatt taaaacattc tatagaccag 60  
 tacataccat tcctcttagc cagtttatta ctttattcat tgacttggtc tacgctacta 120  
 atcttaatga gtgctggttg aagagatatg gggacagcgg caacggttct ttttcttgga 180  
 gtgattgttt tgtcaatctt tgcggtagtc atggaacatt atagctacaa tatcttgatg 240  
 aaacagcgta gtagtgaatt tggactgtat aacatttttg ggatgaataa acgtcaagtt 300

gcgcgtgtag ctagtctaga gctgtttatt atttatatat ttcttatttc tataggaagt 360  
ctgttttagtg ctttttttgc taaatttatt tatttaattt ttgtcaacat tattaactat 420  
catgcactaa atcttagttt aagtttatgg ccatttatta tttgtatcgt tatatttaca 480  
ggatatttttc tgactttaga agttccagtt attcgacatg ttcatttatc atccccatta 540  
agtcttttta gaaagaaaca acagggagaa aaagaaccaa aaggtaatct tataacttgca 600  
attttagcgt tagtagctat cgccatcgct tatacaatgg ctcttacttc aggtaaagca 660  
cctgcattag ctgttatcta tcgtttcttc tttgcagtac ttttagtaat tgctgggtact 720  
tatctttttt atattagttt tatgacatgg tacttaaaaa gggtgcgtca aaacaagcat 780  
tattattata aatctgagca ttttgtatca acttcgcaaa tgatttttcg aatgaagcaa 840  
aatgcagtag ggtagcaag tatcacttta ttagctgtta tggctctagt tactattgct 900  
acaacagtct cactctattc aaatacacia aatgttggtta ccggactatt tccaaaatca 960  
gtaagtattat caatagataa ttcaaaaggt gacgcgaaaa atatatttga agaaaagatt 1020  
ttgaagaaac taggtaagtc atctaaggaa gctatcactt ataatcagac aatgatttcg 1080  
atgccagtta gtcaatcaag tgacttaata tcacatcta 1119

<210> 198  
<211> 373  
<212> PRT  
<213> Streptococcus agalactiae

<400> 198

Met	Asn	Asn	Met	Phe	Tyr	Leu	Lys	Ile	Ala	Trp	His	Asn	Leu	Lys	His
1				5					10					15	
Ser	Ile	Asp	Gln	Tyr	Ile	Pro	Phe	Leu	Leu	Ala	Ser	Leu	Leu	Leu	Tyr
			20					25					30		
Ser	Leu	Thr	Cys	Ser	Thr	Leu	Leu	Ile	Leu	Met	Ser	Ala	Val	Gly	Arg
		35					40					45			
Asp	Met	Gly	Thr	Ala	Ala	Thr	Val	Leu	Phe	Leu	Gly	Val	Ile	Val	Leu
	50					55					60				
Ser	Ile	Phe	Ala	Val	Val	Met	Glu	His	Tyr	Ser	Tyr	Asn	Ile	Leu	Met
65				70					75					80	
Lys	Gln	Arg	Ser	Ser	Glu	Phe	Gly	Leu	Tyr	Asn	Ile	Leu	Gly	Met	Asn
			85					90						95	
Lys	Arg	Gln	Val	Ala	Arg	Val	Ala	Ser	Leu	Glu	Leu	Phe	Ile	Ile	Tyr
		100						105					110		

Ile	Phe	Leu	Ile	Ser	Ile	Gly	Ser	Leu	Phe	Ser	Ala	Phe	Phe	Ala	Lys	
		115					120					125				
Phe	Ile	Tyr	Leu	Ile	Phe	Val	Asn	Ile	Ile	Asn	Tyr	His	Ala	Leu	Asn	
		130				135					140					
Leu	Ser	Leu	Ser	Leu	Trp	Pro	Phe	Ile	Ile	Cys	Ile	Val	Ile	Phe	Thr	
		145			150					155					160	
Gly	Ile	Phe	Leu	Thr	Leu	Glu	Val	Pro	Val	Ile	Arg	His	Val	His	Leu	
				165					170					175		
Ser	Ser	Pro	Leu	Ser	Leu	Phe	Arg	Lys	Lys	Gln	Gln	Gly	Glu	Lys	Glu	
			180					185					190			
Pro	Lys	Gly	Asn	Leu	Ile	Leu	Ala	Ile	Leu	Ala	Leu	Val	Ala	Ile	Ala	
		195					200					205				
Ile	Ala	Tyr	Thr	Met	Ala	Leu	Thr	Ser	Gly	Lys	Ala	Pro	Ala	Leu	Ala	
		210				215					220					
Val	Ile	Tyr	Arg	Phe	Phe	Phe	Ala	Val	Leu	Leu	Val	Ile	Ala	Gly	Thr	
		225			230					235					240	
Tyr	Leu	Phe	Tyr	Ile	Ser	Phe	Met	Thr	Trp	Tyr	Leu	Lys	Arg	Leu	Arg	
				245					250					255		
Gln	Asn	Lys	His	Tyr	Tyr	Tyr	Lys	Ser	Glu	His	Phe	Val	Ser	Thr	Ser	
			260					265					270			
Gln	Met	Ile	Phe	Arg	Met	Lys	Gln	Asn	Ala	Val	Gly	Leu	Ala	Ser	Ile	
		275					280					285				
Thr	Leu	Leu	Ala	Val	Met	Ala	Leu	Val	Thr	Ile	Ala	Thr	Thr	Val	Ser	
		290				295					300					
Leu	Tyr	Ser	Asn	Thr	Gln	Asn	Val	Val	Thr	Gly	Leu	Phe	Pro	Lys	Ser	
		305			310					315				320		
Val	Ser	Leu	Ser	Ile	Asp	Asn	Ser	Lys	Gly	Asp	Ala	Lys	Asn	Ile	Phe	
				325					330					335		
Glu	Glu	Lys	Ile	Leu	Lys	Lys	Leu	Gly	Lys	Ser	Ser	Lys	Glu	Ala	Ile	
			340					345					350			
Thr	Tyr	Asn	Gln	Thr	Met	Ile	Ser	Met	Pro	Val	Ser	Gln	Ser	Ser	Asp	
		355				360						365				
Leu	Ile	Ser	His	Leu												
				370												

<210> 199  
 <211> 735  
 <212> DNA  
 <213> Streptococcus agalactiae

<400> 199  
atggttgagc caattatttc aatacaagga cttcataaaa gttttgggaa aaatgaggtt 60  
ttaaaggca ttgacttgga tattcatcaa ggagaagtgg tggttattat tggcccttct 120  
ggctctggta agtcaacatt tttaagaaca atgaatctct tggaagtacc aacaaaggga 180  
acagtgactt ttgaagggat tgatataaca gacaaaaaga atgatatttt taaaatgcgc 240  
gaaaaaatgg gcatgggtttt tcaacagttc aatctatttc ccaatatgac tgtactagaa 300  
aatattactt tatcacctat taagacaaag ggactttcta agcttgatgc tcagacaaaa 360  
gcatacgagc tacttgaaaa agttggactc aaagagaagg ctaatgctta tccagcaagc 420  
ttatctggag gacaacaaca acggattgct attgcaagag gtcttgcaat gaatcctgat 480  
gtccttcttt ttgatgaacc tacttcagct cttgatcctg aaatggtagg tgaagtcttg 540  
actgttatgc aagatttagc taaatctggg atgacgatgg ttattgtcac tcatgaaatg 600  
ggttttgcac gtgaagtagc ggatcgtgtc atttttatgg atgcagggat tattgttgag 660  
caagggaccc ctaagaaagt atttgagcag acaaaagaaa tccgcacaag agacttctta 720  
agtaaagtat tataa 735

<210> 200  
<211> 244  
<212> PRT  
<213> Streptococcus agalactiae

<400> 200  
Met Val Glu Pro Ile Ile Ser Ile Gln Gly Leu His Lys Ser Phe Gly  
1 5 10 15  
Lys Asn Glu Val Leu Lys Gly Ile Asp Leu Asp Ile His Gln Gly Glu  
20 25 30  
Val Val Val Ile Ile Gly Pro Ser Gly Ser Gly Lys Ser Thr Phe Leu  
35 40 45  
Arg Thr Met Asn Leu Leu Glu Val Pro Thr Lys Gly Thr Val Thr Phe  
50 55 60  
Glu Gly Ile Asp Ile Thr Asp Lys Lys Asn Asp Ile Phe Lys Met Arg  
65 70 75 80  
Glu Lys Met Gly Met Val Phe Gln Gln Phe Asn Leu Phe Pro Asn Met  
85 90 95  
Thr Val Leu Glu Asn Ile Thr Leu Ser Pro Ile Lys Thr Lys Gly Leu  
100 105 110  
Ser Lys Leu Asp Ala Gln Thr Lys Ala Tyr Glu Leu Leu Glu Lys Val

115	120	125
Gly Leu Lys Glu Lys Ala Asn Ala Tyr Pro Ala Ser Leu Ser Gly Gly		
130	135	140
Gln Gln Gln Arg Ile Ala Ile Ala Arg Gly Leu Ala Met Asn Pro Asp		
145	150	155 160
Val Leu Leu Phe Asp Glu Pro Thr Ser Ala Leu Asp Pro Glu Met Val		
	165	170 175
Gly Glu Val Leu Thr Val Met Gln Asp Leu Ala Lys Ser Gly Met Thr		
	180	185 190
Met Val Ile Val Thr His Glu Met Gly Phe Ala Arg Glu Val Ala Asp		
	195	200 205
Arg Val Ile Phe Met Asp Ala Gly Ile Ile Val Glu Gln Gly Thr Pro		
	210	215 220
Lys Lys Val Phe Glu Gln Thr Lys Glu Ile Arg Thr Arg Asp Phe Leu		
225	230	235 240
Ser Lys Val Leu		

<210> 201  
 <211> 348  
 <212> DNA  
 <213> Streptococcus agalactiae

<400> 201  
 atgtctcast atcaagagtg gttagaaaac gactcactcg gtaaagatat taagtcagat 60  
 ttagaagcta tttaaaggaga tgaatctgaa attcaggatc gttttttacaa aacattagaa 120  
 tttggaacgg cgggattgag aggtaaactt ggagcaggaa ccaatcgtat gaatacttat 180  
 atggtgggga aagcagcaca agcattagct aatcgattat tgatcatggc cctgaagcta 240  
 ttgcacgtgg aattgcagtt agttatgatg tcccgttatc aatctaagga atttgcagaa 300  
 ttaacttggt ccattatggc agcaaattggt attaaagcct tatatttta 348

<210> 202  
 <211> 122  
 <212> PRT  
 <213> Streptococcus agalactiae

<400> 202  
 Met Ser His Met Asn Tyr Lys Glu Ile Tyr Gln Glu Trp Leu Glu Asn  
 1 5 10 15  
 Asp Ser Leu Gly Lys Asp Ile Lys Ser Asp Leu Glu Ala Ile Lys Gly  
 20 25 30

Asp	Glu	Ser	Glu	Ile	Gln	Asp	Arg	Phe	Tyr	Lys	Thr	Leu	Glu	Phe	Gly
	35						40					45			
Thr	Ala	Gly	Leu	Arg	Gly	Lys	Leu	Gly	Ala	Gly	Thr	Asn	Arg	Met	Asn
	50					55					60				
Thr	Tyr	Met	Val	Gly	Lys	Ala	Ala	Gln	Ala	Leu	Ala	Asn	Arg	Leu	Leu
65					70					75					80
Ile	Met	Ala	Leu	Lys	Leu	Leu	His	Val	Glu	Leu	Gln	Leu	Val	Met	Met
				85					90					95	
Ser	Arg	Tyr	Gln	Ser	Lys	Glu	Phe	Ala	Glu	Leu	Thr	Trp	Ser	Ile	Met
			100					105					110		
Ala	Ala	Asn	Gly	Ile	Lys	Ala	Leu	Tyr	Leu						
		115					120								

<210> 203  
 <211> 1068  
 <212> DNA  
 <213> Streptococcus agalactiae

<400> 203	
atgcaacctg taaaagtcga tgaaccttct gttgaagaaa ccattactat tttgaaaggt	60
atccaaaaaa aatacgaaga ttatcatcac gtaaaatata ataatgatgc catagaagca	120
gctgcagtac tatctaatacg ttatatccaa gaccgctttt tacctgataa agcaatagac	180
ttattagatg aagctgggttc taaaatgaac ctaacactaa attttggtga tccaaaagaa	240
attgatcaac gtctcattga agcagaaaat ttaaaagcgc aagcgactcg tgaagaagat	300
tacgaacgtg cagcttactt ccgtgaccag attgcaaaat ataaagaaat gcagcaacaa	360
aaggctcgacg atcaagatac acctattatt accgaaaaaa caattgagca catcattgaa	420
gaaaaaacga atatccctgt tgggtgattta aaagaaaaag aacaatctca attaattaat	480
ctcgcagatg acttgaaaca gcatgtgatc ggccaggatg acgctgtcat taagattgca	540
aaagctattc gtcgtaatacg agttgggtctt ggtagcccaa accgtcctat tggttccttt	600
ttatttgtag gaccaaccgg tgttggtaaa actgaacttt ctaaacaact agcaattgag	660
ctctttgggt cagctgatag tatgattcgt tttgatatgt cagagtacat ggaaaagcat	720
gctgttgcta aattagtcgg agcgcctcca ggatacgtgg gatacgagga agctggacaa	780
ctaactgaaa aggttcgctg aaatccttac tcgctcatcc ttctagatga aattgaaaaa	840
gctcatcccg atgtcatgca tatgttcttg caggtccttg atgacggctg attaacagat	900
ggacaaggaa gaactggttag ttttaaagat accattatca tcatgacctc aaatgctggt	960

tctggtaaaa ctgaagcaag tgttggcttt ggtgcctcac gagaaggtag gacgaattcg 1020  
agctcgggtac ccgggggatcc tctagagtcg acctgcaggc atgcaagc 1068

<210> 204  
<211> 356  
<212> PRT  
<213> Streptococcus agalactiae  
<400> 204

Met	Gln	Pro	Val	Lys	Val	Asp	Glu	Pro	Ser	Val	Glu	Glu	Thr	Ile	Thr	
1				5					10					15		
Ile	Leu	Lys	Gly	Ile	Gln	Lys	Lys	Tyr	Glu	Asp	Tyr	His	His	Val	Lys	
			20					25					30			
Tyr	Asn	Asn	Asp	Ala	Ile	Glu	Ala	Ala	Ala	Val	Leu	Ser	Asn	Arg	Tyr	
		35					40					45				
Ile	Gln	Asp	Arg	Phe	Leu	Pro	Asp	Lys	Ala	Ile	Asp	Leu	Leu	Asp	Glu	
	50					55					60					
Ala	Gly	Ser	Lys	Met	Asn	Leu	Thr	Leu	Asn	Phe	Val	Asp	Pro	Lys	Glu	
65					70					75					80	
Ile	Asp	Gln	Arg	Leu	Ile	Glu	Ala	Glu	Asn	Leu	Lys	Ala	Gln	Ala	Thr	
			85						90					95		
Arg	Glu	Glu	Asp	Tyr	Glu	Arg	Ala	Ala	Tyr	Phe	Arg	Asp	Gln	Ile	Ala	
			100					105					110			
Lys	Tyr	Lys	Glu	Met	Gln	Gln	Gln	Lys	Val	Asp	Asp	Gln	Asp	Thr	Pro	
		115					120					125				
Ile	Ile	Thr	Glu	Lys	Thr	Ile	Glu	His	Ile	Ile	Glu	Glu	Lys	Thr	Asn	
	130					135					140					
Ile	Pro	Val	Gly	Asp	Leu	Lys	Glu	Lys	Glu	Gln	Ser	Gln	Leu	Ile	Asn	
145					150					155					160	
Leu	Ala	Asp	Asp	Leu	Lys	Gln	His	Val	Ile	Gly	Gln	Asp	Asp	Ala	Val	
				165					170					175		
Ile	Lys	Ile	Ala	Lys	Ala	Ile	Arg	Arg	Asn	Arg	Val	Gly	Leu	Gly	Ser	
			180					185					190			
Pro	Asn	Arg	Pro	Ile	Gly	Ser	Phe	Leu	Phe	Val	Gly	Pro	Thr	Gly	Val	
		195					200					205				
Gly	Lys	Thr	Glu	Leu	Ser	Lys	Gln	Leu	Ala	Ile	Glu	Leu	Phe	Gly	Ser	
	210					215					220					
Ala	Asp	Ser	Met	Ile	Arg	Phe	Asp	Met	Ser	Glu	Tyr	Met	Glu	Lys	His	
225					230					235					240	

Ala Val Ala Lys Leu Val Gly Ala Pro Pro Gly Tyr Val Gly Tyr Glu  
                     245                    250                    255  
 Glu Ala Gly Gln Leu Thr Glu Lys Val Arg Arg Asn Pro Tyr Ser Leu  
                     260                    265                    270  
 Ile Leu Leu Asp Glu Ile Glu Lys Ala His Pro Asp Val Met His Met  
                     275                    280                    285  
 Phe Leu Gln Val Leu Asp Asp Gly Arg Leu Thr Asp Gly Gln Gly Arg  
                     290                    295                    300  
 Thr Val Ser Phe Lys Asp Thr Ile Ile Ile Met Thr Ser Asn Ala Gly  
 305                    310                    315                    320  
 Ser Gly Lys Thr Glu Ala Ser Val Gly Phe Gly Ala Ser Arg Glu Gly  
                     325                    330                    335  
 Arg Thr Asn Ser Ser Ser Val Pro Gly Asp Pro Leu Glu Ser Thr Cys  
                     340                    345                    350  
 Arg His Ala Ser  
                     355

<210> 205  
 <211> 582  
 <212> DNA  
 <213> Streptococcus agalactiae

<400> 205  
 atgagagggga aggttattta cggcacaacc cttataggtc tttttctatt cttatttttc 60  
 tatttttggga ttcctaagca tcacatcgag agaatacatc atcatcgat aaagcaggta 120  
 gatgcgaaga gtgatttaac aggatttaaa acccatttgc ccattatcag cattgatata 180  
 aagcaacaag ttattcctct tgttacaaaa gaaggcggaa aatatgtcaa agctagggat 240  
 aatattaatg ttgatatcga attacgggat tctccaagta gatcacatca tttatcagaa 300  
 aagccgagaa ttaggacaaa agggttaata tcatatagag gaaattcctc tcgttacttt 360  
 gataagaagt cattgaaagt taagtttggt actaataagt taaaggaaaa gaagcatcga 420  
 ttagcaggaa tgcctaaaga atcggagtgg gtattgcatg gtccctttct agacagaaca 480  
 ttattaagaa attatctgag ttataatatt gctggtgaga ttatgcctat gcccacaaacg 540  
 ttcgctactg tgagttattt gtcaatgggtg agtatcaggg ag 582

<210> 206  
 <211> 194  
 <212> PRT  
 <213> Streptococcus agalactiae

<400> 206

Met	Arg	Gly	Lys	Val	Ile	Tyr	Gly	Thr	Thr	Leu	Ile	Gly	Leu	Phe	Leu			
1				5					10					15				
Phe	Leu	Phe	Phe	Tyr	Phe	Trp	Ile	Pro	Lys	His	His	Ile	Glu	Arg	Ile			
			20					25					30					
His	His	His	Arg	Ile	Lys	Gln	Val	Asp	Ala	Lys	Ser	Asp	Leu	Thr	Gly			
		35					40					45						
Phe	Lys	Thr	His	Leu	Pro	Ile	Ile	Ser	Ile	Asp	Thr	Lys	Gln	Gln	Val			
	50					55					60							
Ile	Pro	Leu	Val	Thr	Lys	Glu	Gly	Gly	Lys	Tyr	Val	Lys	Ala	Arg	Asp			
65					70					75					80			
Asn	Ile	Asn	Val	Asp	Ile	Glu	Leu	Arg	Asp	Ser	Pro	Ser	Arg	Ser	His			
			85						90					95				
His	Leu	Ser	Glu	Lys	Pro	Arg	Ile	Arg	Thr	Lys	Gly	Leu	Ile	Ser	Tyr			
			100					105					110					
Arg	Gly	Asn	Ser	Ser	Arg	Tyr	Phe	Asp	Lys	Lys	Ser	Leu	Lys	Val	Lys			
		115					120					125						
Phe	Val	Thr	Asn	Lys	Leu	Lys	Glu	Lys	Lys	His	Arg	Leu	Ala	Gly	Met			
	130					135					140							
Pro	Lys	Glu	Ser	Glu	Trp	Val	Leu	His	Gly	Pro	Phe	Leu	Asp	Arg	Thr			
145					150					155					160			
Leu	Leu	Arg	Asn	Tyr	Leu	Ser	Tyr	Asn	Ile	Ala	Gly	Glu	Ile	Met	Pro			
			165					170						175				
Met	Pro	Gln	Thr	Phe	Ala	Thr	Val	Ser	Tyr	Leu	Ser	Met	Val	Ser	Ile			
			180					185					190					

Arg Glu

<210> 207  
 <211> 498  
 <212> DNA  
 <213> Streptococcus agalactiae

<400> 207	
cttcacattt tattgatcac tatctgacaa atgttaatca aacagcagtt cttatttttag	60
tgggatatta ttcaatgtat gtcttgcaga ccttaattca atattttggg aatctctttt	120
ttgcgcgtgt ttcttatagt attgtagag atattcgtag agatgctttt gctaatatgg	180
aaaggctagg catgtcttat tttgatagga caccggcagg atctattgtg tcacgtatta	240
ctaatgatac tgaagcaata tctgatatgt tttcgggtat tttatcaagt tttatctcgg	300
cgatatttat ttttacagtt actctgtaca ctatgttgat gctagacatt aaactaacag	360

gactcgtcgc tcttttggtta cctggttatct ttatattagt gaatgtctat cggaaaaaat 420  
cagtcactgt cattgctaaa acgagaagtt tacttagtga tatcaacagt aaattatcag 480  
aaagtattga aggaattc 498

<210> 208  
<211> 165  
<212> PRT  
<213> Streptococcus agalactiae

<400> 208

Ser	His	Phe	Ile	Asp	His	Tyr	Leu	Thr	Asn	Val	Asn	Gln	Thr	Ala	Val
1				5					10					15	
Leu	Ile	Leu	Val	Gly	Tyr	Tyr	Ser	Met	Tyr	Val	Leu	Gln	Thr	Leu	Ile
			20				25						30		
Gln	Tyr	Phe	Gly	Asn	Leu	Phe	Phe	Ala	Arg	Val	Ser	Tyr	Ser	Ile	Val
		35					40					45			
Arg	Asp	Ile	Arg	Arg	Asp	Ala	Phe	Ala	Asn	Met	Glu	Arg	Leu	Gly	Met
	50					55					60				
Ser	Tyr	Phe	Asp	Arg	Thr	Pro	Ala	Gly	Ser	Ile	Val	Ser	Arg	Ile	Thr
65					70					75				80	
Asn	Asp	Thr	Glu	Ala	Ile	Ser	Asp	Met	Phe	Ser	Gly	Ile	Leu	Ser	Ser
			85						90					95	
Phe	Ile	Ser	Ala	Ile	Phe	Ile	Phe	Thr	Val	Thr	Leu	Tyr	Thr	Met	Leu
			100					105						110	
Met	Leu	Asp	Ile	Lys	Leu	Thr	Gly	Leu	Val	Ala	Leu	Leu	Leu	Pro	Val
		115					120					125			
Ile	Phe	Ile	Leu	Val	Asn	Val	Tyr	Arg	Lys	Lys	Ser	Val	Thr	Val	Ile
		130				135					140				
Ala	Lys	Thr	Arg	Ser	Leu	Leu	Ser	Asp	Ile	Asn	Ser	Lys	Leu	Ser	Glu
145					150					155					160
Ser	Ile	Glu	Gly	Ile											
				165											

<210> 209  
<211> 681  
<212> DNA  
<213> Streptococcus agalactiae

<400> 209

atgtaccata ttgaattaaa aaaggaagct ttactaccaa gagaacgcct agttgattta 60  
ggcgcagata gattgagtaa tcaggagtta ttagccattc tcttacgtac aggtattaaa 120

gaaaaacctg ttcttgaaat ttcaacgcaa attttagaaa acataagcag tttagcagat 180  
 tttggtcaat tacccttaca ggagttgcaa tccattaaag gaatcgggtca ggttaaattcc 240  
 gtcgaaataa aagctatgct agaactagca aaacggattc acaaagctga atatgatcgt 300  
 aaagagcaaa ttttaagtag tgaacaatta gcgaggaaaa tgatgctcga attaggggat 360  
 aaaaaacaag aacatttagt agctatttat atggatacac aaaatcgtat tatcgaacag 420  
 agaactattt ttattggtac tgtacgtcgt tcagtagcag agccaagaga aattctacat 480  
 tatgcttgta aaaacatggc aacttctttg attattatac ataatcatcc ctcaggttct 540  
 ccaaattcca gtgaaagtga ttttaagtttc actaaaaaaaa taaaacgatc atgtgatcat 600  
 ctgggaattg tctgcctaga tcacatcatc gttggaaaaa ataaatatta tagttttcga 660  
 gaagaagcag atattttata a 681

<210> 210  
 <211> 226  
 <212> PRT  
 <213> Streptococcus agalactiae

<400> 210

Met	Tyr	His	Ile	Glu	Leu	Lys	Lys	Glu	Ala	Leu	Leu	Pro	Arg	Glu	Arg	1	5	10	15
Leu	Val	Asp	Leu	Gly	Ala	Asp	Arg	Leu	Ser	Asn	Gln	Glu	Leu	Leu	Ala	20	25	30	
Ile	Leu	Leu	Arg	Thr	Gly	Ile	Lys	Glu	Lys	Pro	Val	Leu	Glu	Ile	Ser	35	40	45	
Thr	Gln	Ile	Leu	Glu	Asn	Ile	Ser	Ser	Leu	Ala	Asp	Phe	Gly	Gln	Leu	50	55	60	
Ser	Leu	Gln	Glu	Leu	Gln	Ser	Ile	Lys	Gly	Ile	Gly	Gln	Val	Lys	Ser	65	70	75	80
Val	Glu	Ile	Lys	Ala	Met	Leu	Glu	Leu	Ala	Lys	Arg	Ile	His	Lys	Ala	85	90	95	
Glu	Tyr	Asp	Arg	Lys	Glu	Gln	Ile	Leu	Ser	Ser	Glu	Gln	Leu	Ala	Arg	100	105	110	
Lys	Met	Met	Leu	Glu	Leu	Gly	Asp	Lys	Lys	Gln	Glu	His	Leu	Val	Ala	115	120	125	
Ile	Tyr	Met	Asp	Thr	Gln	Asn	Arg	Ile	Ile	Glu	Gln	Arg	Thr	Ile	Phe	130	135	140	
Ile	Gly	Thr	Val	Arg	Arg	Ser	Val	Ala	Glu	Pro	Arg	Glu	Ile	Leu	His				

145		150		155		160									
Tyr	Ala	Cys	Lys	Asn	Met	Ala	Thr	Ser	Leu	Ile	Ile	Ile	His	Asn	His
				165					170					175	
Pro	Ser	Gly	Ser	Pro	Asn	Pro	Ser	Glu	Ser	Asp	Leu	Ser	Phe	Thr	Lys
			180					185					190		
Lys	Ile	Lys	Arg	Ser	Cys	Asp	His	Leu	Gly	Ile	Val	Cys	Leu	Asp	His
		195					200					205			
Ile	Ile	Val	Gly	Lys	Asn	Lys	Tyr	Tyr	Ser	Phe	Arg	Glu	Glu	Ala	Asp
	210					215					220				

Ile Leu  
225

<210> 211  
 <211> 579  
 <212> DNA  
 <213> Streptococcus agalactiae

<400> 211  
 tgggttaaag tagtgatagc ttgtattcca tctatttttaa ttgctttacc atttgataat 60  
 tggtttgaag ctcatttttaa tttcatgatt ccgattgcaa tagccctaatt cttttatggt 120  
 tttgtcttca tatggggttga aaaacgtaat gcacacctca aaccacaggt aaccgaattg 180  
 gcaagtatgt cttacaagac agctttcttg attggatggt tccagggttct cagtattggt 240  
 ccgggaacca gtcgttctgg agctactatt ttaggagcaa ttattattgg aactagtcgt 300  
 tcggtcgctg ctgactttac tttcttcctt gccatcccaa ctatgtttgg ttatagtgga 360  
 cttaaggcgg ttaaataattt tttagatggt aacgtcttga gtttagacca atctttaata 420  
 cttttagtag caagtctgac agctttcgta gttagtttat atgttattcg tttcttgaca 480  
 gactatgtca aacgacacga tttcaccatc tttggtaagt atcgtatagt cttaggaagt 540  
 ttactcatcc tctactgggt agttgttcat ttattctaa 579

<210> 212  
 <211> 192  
 <212> PRT  
 <213> Streptococcus agalactiae

<400> 212

Trp	Leu	Lys	Val	Val	Ile	Ala	Cys	Ile	Pro	Ser	Ile	Leu	Ile	Ala	Leu
1				5					10					15	
Pro	Phe	Asp	Asn	Trp	Phe	Glu	Ala	His	Phe	Asn	Phe	Met	Ile	Pro	Ile
			20					25					30		

Ala	Ile	Ala	Leu	Ile	Phe	Tyr	Gly	Phe	Val	Phe	Ile	Trp	Val	Glu	Lys	
	35						40					45				
Arg	Asn	Ala	His	Leu	Lys	Pro	Gln	Val	Thr	Glu	Leu	Ala	Ser	Met	Ser	
	50					55					60					
Tyr	Lys	Thr	Ala	Phe	Leu	Ile	Gly	Cys	Phe	Gln	Val	Leu	Ser	Ile	Val	
65					70					75					80	
Pro	Gly	Thr	Ser	Arg	Ser	Gly	Ala	Thr	Ile	Leu	Gly	Ala	Ile	Ile	Ile	
				85					90					95		
Gly	Thr	Ser	Arg	Ser	Val	Ala	Ala	Asp	Phe	Thr	Phe	Phe	Leu	Ala	Ile	
			100					105					110			
Pro	Thr	Met	Phe	Gly	Tyr	Ser	Gly	Leu	Lys	Ala	Val	Lys	Tyr	Phe	Leu	
	115						120					125				
Asp	Gly	Asn	Val	Leu	Ser	Leu	Asp	Gln	Ser	Leu	Ile	Leu	Leu	Val	Ala	
	130					135					140					
Ser	Leu	Thr	Ala	Phe	Val	Val	Ser	Leu	Tyr	Val	Ile	Arg	Phe	Leu	Thr	
145					150					155					160	
Asp	Tyr	Val	Lys	Arg	His	Asp	Phe	Thr	Ile	Phe	Gly	Lys	Tyr	Arg	Ile	
			165						170					175		
Val	Leu	Gly	Ser	Leu	Leu	Ile	Leu	Tyr	Trp	Leu	Val	Val	His	Leu	Phe	
		180						185					190			

<210> 213  
 <211> 547  
 <212> DNA  
 <213> Streptococcus agalactiae

<400> 213	
atggaaatga aacaaatcag tgaaacaaca ctgaaaatta caattagtat ggaagattta	60
gaagatcgtg gtatggagct gaaagatttc ctaatccctc aggagaagac tgaggaattt	120
ttctattctg tcatggatga attagacttg ccagaaaact ttaaaaatag tggtatgtta	180
agtttttcgag taacacctaa aaaagatcgc attgatgttt ttgttacaaa gtctgaatta	240
agtaaagatt taaatttaga agaattagca gatttgggtg acatttcaaa aatgtctcca	300
gaagactttt ttaaaacctt ggaacaatcg atgttgga aaaggggatac ggatgcccat	360
gccaaattag cagaaattga aaatatgatg gataaagcaa ctcaagaagt agttgaggaa	420
aatgtttctg aagaacaacc tgaaaaggaa gtagaaacga ttggatatgt tcactatgtc	480
tttgattttg ataatttga agctgtagtt cgattttcac aaacgattga ttttccaata	540
gaagctt	547

<210> 214  
 <211> 182  
 <212> PRT  
 <213> Streptococcus agalactiae

<400> 214

Met	Glu	Met	Lys	Gln	Ile	Ser	Glu	Thr	Thr	Leu	Lys	Ile	Thr	Ile	Ser	
1				5					10					15		
Met	Glu	Asp	Leu	Glu	Asp	Arg	Gly	Met	Glu	Leu	Lys	Asp	Phe	Leu	Ile	
			20					25					30			
Pro	Gln	Glu	Lys	Thr	Glu	Glu	Phe	Phe	Tyr	Ser	Val	Met	Asp	Glu	Leu	
			35				40					45				
Asp	Leu	Pro	Glu	Asn	Phe	Lys	Asn	Ser	Gly	Met	Leu	Ser	Phe	Arg	Val	
	50					55					60					
Thr	Pro	Lys	Lys	Asp	Arg	Ile	Asp	Val	Phe	Val	Thr	Lys	Ser	Glu	Leu	
65					70					75				80		
Ser	Lys	Asp	Leu	Asn	Leu	Glu	Glu	Leu	Ala	Asp	Leu	Gly	Asp	Ile	Ser	
				85					90					95		
Lys	Met	Ser	Pro	Glu	Asp	Phe	Phe	Lys	Thr	Leu	Glu	Gln	Ser	Met	Leu	
			100					105					110			
Glu	Lys	Gly	Asp	Thr	Asp	Ala	His	Ala	Lys	Leu	Ala	Glu	Ile	Glu	Asn	
		115					120					125				
Met	Met	Asp	Lys	Ala	Thr	Gln	Glu	Val	Val	Glu	Glu	Asn	Val	Ser	Glu	
	130					135					140					
Glu	Gln	Pro	Glu	Lys	Glu	Val	Glu	Thr	Ile	Gly	Tyr	Val	His	Tyr	Val	
145				150						155					160	
Phe	Asp	Phe	Asp	Asn	Ile	Glu	Ala	Val	Val	Arg	Phe	Ser	Gln	Thr	Ile	
				165					170					175		
Asp	Phe	Pro	Ile	Glu	Ala											
			180													

<210> 215  
 <211> 447  
 <212> DNA  
 <213> Streptococcus agalactiae

<400> 215

ggaaaccaac	ggccagtaca	atcgtcaagg	gtagattatc	ctaaacgtag	tcgtgccaag	60
attgtagaag	tttatttttag	acaagcttct	actactgatt	attctggtgt	ttacaaaggt	120
tactatattg	actttgaagc	caaagaaacc	cggcagaaaa	ctgctatgcc	tatgaaaaat	180
tttcatgctc	accaaataga	gcacatggca	aatgtattac	agcaaaaagg	gatttgcttt	240

gtcttgcttc atttttccac acttaaggaa acctatctac tccttgctaa tgagttaatt 300  
tcattttatc agattgataa aggcaataaa tcaatgccta ttgattatat cagaaaaaat 360  
ggatttttcg taaaggagag tgcctttcct caagtcctt acttagatat tattgaagaa 420  
aaattattag gcggtgatta caattaa 447

<210> 216  
<211> 148  
<212> PRT  
<213> Streptococcus agalactiae

<400> 216

Gly Asn Gln Arg Pro Val Gln Ser Ser Arg Val Asp Tyr Pro Lys Arg  
1 5 10 15  
Ser Arg Ala Lys Ile Val Glu Val Tyr Phe Arg Gln Ala Ser Thr Thr  
20 25 30  
Asp Tyr Ser Gly Val Tyr Lys Gly Tyr Tyr Ile Asp Phe Glu Ala Lys  
35 40 45  
Glu Thr Arg Gln Lys Thr Ala Met Pro Met Lys Asn Phe His Ala His  
50 55 60  
Gln Ile Glu His Met Ala Asn Val Leu Gln Gln Lys Gly Ile Cys Phe  
65 70 75 80  
Val Leu Leu His Phe Ser Thr Leu Lys Glu Thr Tyr Leu Leu Pro Ala  
85 90 95  
Asn Glu Leu Ile Ser Phe Tyr Gln Ile Asp Lys Gly Asn Lys Ser Met  
100 105 110  
Pro Ile Asp Tyr Ile Arg Lys Asn Gly Phe Phe Val Lys Glu Ser Ala  
115 120 125  
Phe Pro Gln Val Pro Tyr Leu Asp Ile Ile Glu Glu Lys Leu Leu Gly  
130 135 140  
Gly Asp Tyr Asn  
145

<210> 217  
<211> 433  
<212> DNA  
<213> Streptococcus agalactiae

<400> 217

ggatcctaaa aacgctaagg tttatcaaaa aaatgctgat caatttagtg acaaggcaat 60  
ggctattgca gagaagtata agccaaaatt taaagctgca aagtctaaat actttgtgac 120  
ttcacatata gcattctcat acttagctaa gcgatacgga ttgactcagt taggtattgc 180

aggtgtctca accgagcaag aacctagtgc taaaaaatta gccgaaattc aggagtttgt 240  
gaaaacatat aaggттаага ctattttttgt tgaagaagga gtctcaccta aattagctca 300  
agcagtagct tcagctactc gagttaaaat tgcaagttta agtccttttag aagcagttcc 360  
caaaaacaat aaagattact tagaaaattt ggaaactaat cttaaggtac ttgtcaaate 420  
gttaaatacaa tag 433

<210> 218  
<211> 143  
<212> PRT  
<213> Streptococcus agalactiae  
<400> 218

Asp Pro Lys Asn Ala Lys Val Tyr Gln Lys Asn Ala Asp Gln Phe Ser  
1 5 10 15  
Asp Lys Ala Met Ala Ile Ala Glu Lys Tyr Lys Pro Lys Phe Lys Ala  
20 25 30  
Ala Lys Ser Lys Tyr Phe Val Thr Ser His Thr Ala Phe Ser Tyr Leu  
35 40 45  
Ala Lys Arg Tyr Gly Leu Thr Gln Leu Gly Ile Ala Gly Val Ser Thr  
50 55 60  
Glu Gln Glu Pro Ser Ala Lys Lys Leu Ala Glu Ile Gln Glu Phe Val  
65 70 75 80  
Lys Thr Tyr Lys Val Lys Thr Ile Phe Val Glu Glu Gly Val Ser Pro  
85 90 95  
Lys Leu Ala Gln Ala Val Ala Ser Ala Thr Arg Val Lys Ile Ala Ser  
100 105 110  
Leu Ser Pro Leu Glu Ala Val Pro Lys Asn Asn Lys Asp Tyr Leu Glu  
115 120 125  
Asn Leu Glu Thr Asn Leu Lys Val Leu Val Lys Ser Leu Asn Gln  
130 135 140

<210> 219  
<211> 717  
<212> DNA  
<213> Streptococcus agalactiae

<400> 219  
atgaaaaaag tcacgcattt aaaaaaacta caaaaagcat acgcctcaga aactgtttta 60  
aataatatta atttgagggt gtttaaagga gaaataattg gattaatagg accctctgga 120  
gcagggaat ctaccttgat taaaactatg cttggcatgg aaaaagcaga taagggaaca 180

gctcttggtc ttgataactca aatgccagat cgtaatat<sup>1</sup>ttt taaatcaa<sup>1</sup>at tggctatatg 240  
gctcaatctg atgccttaca cgagtcttta actggcttag aaaatttatt attctttgga 300  
aaaatgaaag gtattcaaaa aactgaatta aaacagcaga taactcatat ttctaaagta 360  
gtagatctag aaaaccaact tgataaat<sup>1</sup>tt gtctcagg<sup>1</sup>tt actcagaagg tatgaaaaga 420  
cggctttctc tagccatcgc cctacttgga aaccccacag ttttaatcct agatgaac<sup>1</sup>ct 480  
accgttggaa ttgatccatc cttgaggaga aaaatctggc aagagcta<sup>1</sup>at taatattaag 540  
gatgaaggac gttctatctt tattacaacc cacgttatgg atgaagcaga attaacaagt 600  
aaggttgcac tactattacg tggaaacatt attgcctttg atactccatt acatttaaaa 660  
aaacaattta atgtgag<sup>1</sup>tac tattgaggaa gttttcttaa aagctgaagg agaataa 717

<210> 220  
<211> 238  
<212> PRT  
<213> Streptococcus agalactiae

<400> 220

Met	Lys	Lys	Val	Ile	Asp	Leu	Lys	Lys	Leu	Gln	Lys	Ala	Tyr	Ala	Ser	1	5	10	15
Glu	Thr	Val	Leu	Asn	Asn	Ile	Asn	Leu	Glu	Val	Phe	Lys	Gly	Glu	Ile	20	25	30	
Ile	Gly	Leu	Ile	Gly	Pro	Ser	Gly	Ala	Gly	Lys	Ser	Thr	Leu	Ile	Lys	35	40	45	
Thr	Met	Leu	Gly	Met	Glu	Lys	Ala	Asp	Lys	Gly	Thr	Ala	Leu	Val	Leu	50	55	60	
Asp	Thr	Gln	Met	Pro	Asp	Arg	Asn	Ile	Leu	Asn	Gln	Ile	Gly	Tyr	Met	65	70	75	80
Ala	Gln	Ser	Asp	Ala	Leu	His	Glu	Ser	Leu	Thr	Gly	Leu	Glu	Asn	Leu	85	90	95	
Leu	Phe	Phe	Gly	Lys	Met	Lys	Gly	Ile	Gln	Lys	Thr	Glu	Leu	Lys	Gln	100	105	110	
Gln	Ile	Thr	His	Ile	Ser	Lys	Val	Val	Asp	Leu	Glu	Asn	Gln	Leu	Asp	115	120	125	
Lys	Phe	Val	Ser	Gly	Tyr	Ser	Glu	Gly	Met	Lys	Arg	Arg	Leu	Ser	Leu	130	135	140	
Ala	Ile	Ala	Leu	Leu	Gly	Asn	Pro	Thr	Val	Leu	Ile	Leu	Asp	Glu	Pro	145	150	155	160

Thr Val Gly Ile Asp Pro Ser Leu Arg Arg Lys Ile Trp Gln Glu Leu  
165 170 175

Ile Asn Ile Lys Asp Glu Gly Arg Ser Ile Phe Ile Thr Thr His Val  
180 185 190

Met Asp Glu Ala Glu Leu Thr Ser Lys Val Ala Leu Leu Leu Arg Gly  
195 200 205

Asn Ile Ile Ala Phe Asp Thr Pro Leu His Leu Lys Lys Gln Phe Asn  
210 215 220

Val Ser Thr Ile Glu Glu Val Phe Leu Lys Ala Glu Gly Glu  
225 230 235

<210> 221

<211> 591

<212> DNA

<213> Streptococcus agalactiae

<400> 221

atggtacaaa tgatacatga tatgattaaa acaattgagc attttgctga gacacaagct 60

gattttccag tgtatgatat tttaggggaa gtccatactt atggacaact taaagtagac 120

tctgactctc tagctgctca tattgatagc ctaggccttg ttgaaaaatc acctgtctta 180

gtattcggtg gtcaagaata tgaaatggtg gcgacatttg ttgctttaac aaagtcaggg 240

catgcttata taccgggtga ccaacactct gctttggata gaatacaggc tattatgaca 300

gttgctcaac caagccttat catttcaatt ggtgaatttc ctcttgaagt tgataatgtc 360

ccaatcctag acgttttctca agtttcagct atttttgaag aaaagactcc ttatgaggta 420

acacattctg ttaaagggtga tgataattac tatattattht tcacttcagg gactactggt 480

ttaccaaaaag gtgtgcaaatt ttcacatgac aattttattga gctttacaaa ttggatgatt 540

tctgatgatg agtttttcagt tcctgaaaga ccgcaaattg ttggtcaacc c 591

<210> 222

<211> 197

<212> PRT

<213> Streptococcus agalactiae

<400> 222

Met Val Gln Met Ile His Asp Met Ile Lys Thr Ile Glu His Phe Ala  
1 5 10 15

Glu Thr Gln Ala Asp Phe Pro Val Tyr Asp Ile Leu Gly Glu Val His  
20 25 30

Thr Tyr Gly Gln Leu Lys Val Asp Ser Asp Ser Leu Ala Ala His Ile  
35 40 45

Asp	Ser	Leu	Gly	Leu	Val	Glu	Lys	Ser	Pro	Val	Leu	Val	Phe	Gly	Gly
50						55					60				
Gln	Glu	Tyr	Glu	Met	Leu	Ala	Thr	Phe	Val	Ala	Leu	Thr	Lys	Ser	Gly
65					70					75					80
His	Ala	Tyr	Ile	Pro	Val	Asp	Gln	His	Ser	Ala	Leu	Asp	Arg	Ile	Gln
				85					90					95	
Ala	Ile	Met	Thr	Val	Ala	Gln	Pro	Ser	Leu	Ile	Ile	Ser	Ile	Gly	Glu
			100					105					110		
Phe	Pro	Leu	Glu	Val	Asp	Asn	Val	Pro	Ile	Leu	Asp	Val	Ser	Gln	Val
		115					120					125			
Ser	Ala	Ile	Phe	Glu	Glu	Lys	Thr	Pro	Tyr	Glu	Val	Thr	His	Ser	Val
	130					135					140				
Lys	Gly	Asp	Asp	Asn	Tyr	Tyr	Ile	Ile	Phe	Thr	Ser	Gly	Thr	Thr	Gly
145					150					155					160
Leu	Pro	Lys	Gly	Val	Gln	Ile	Ser	His	Asp	Asn	Leu	Leu	Ser	Phe	Thr
				165					170					175	
Asn	Trp	Met	Ile	Ser	Asp	Asp	Glu	Phe	Ser	Val	Pro	Glu	Arg	Pro	Gln
			180					185					190		
Met	Leu	Ala	Gln	Pro											
			195												

<210> 223  
 <211> 1179  
 <212> DNA  
 <213> Streptococcus agalactiae

<400> 223	
atggaaaatc atcgttatga agatgaaggt aaattccagc gtaagatgac cagtcgtcat	60
ctctttatgt tatcgctagg tggtgttatc gggactgggc ttttcttgag ttcaggttat	120
accattgcac aggctggtcc gcttggagct gtgctgtcct atttgattgg tgccgttgtg	180
gtttatattgg tcatgctatc acttggggaa ttggcggttg ccatgccggt gacgggggtca	240
ttccacactt atgccactaa gtttatcagt cctggaacag gttttactgt tgcttggcta	300
tattggattt gttggacggt cgccttgggg actgaatttt taggtgctgc catgctgatg	360
cagcgctggt tcccaaagt ggcggcttgg gcatttgctt ccttttttgc ccttgtgatt	420
tttggtttta atgctcttag cgtacgcttt tttgcagaag cagagtcttt cttctcaagt	480
attaagggtta ttgctatcat tatctttatt atcttgggct taggtgctat gtttggtcta	540
gtttcctttg aaggtcagca caaggctatt ctcttcactc atctgactgc caatgggtgcc	600

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tttccaaatg gtatcgttgc agttgtctca gtcattgttg ctgttaacta tgccttctct 660
ggtactgagt taattggtat tgcggctggt gaaacggata atcccaaaga agctgtacca 720
agggtatta aaacgacaat cggtcgcttg gttgttttct ttgtactgac aattgttgtc 780
ctagcttcgc tattgccaat gaaagaggca ggcgtatcca cagcaccatt cgttgatgtc 840
tttgacaaga tgggaatccc ttttacggcg gatatcatga acttcgttat cttgacagcc 900
atcctgtctg ctggtaactc aggtctctac gcatcaagcc gtatgctctg gtcccttgcc 960
aatgaaggta tgttgtcaaa atctgttgtg aaaatcaata aacacggtgt cccaatgcgt 1020
gctcttctct tgtcaatggc aggagcagtg ctgtcgctct tttcaagtat ttacgctgca 1080
gacacagttt atctagcctt ggtttcaatc gcgggctttg ctgttggtgt cgtatggcta 1140
gccattccag tcgcacaaat caatttccgc aaggaattc 1179

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<210> 224
<211> 393
<212> PRT
<213> Streptococcus agalactiae

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<400> 224

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Met Glu Asn His Arg Tyr Glu Asp Glu Gly Lys Phe Gln Arg Lys Met
1          5          10          15

Thr Ser Arg His Leu Phe Met Leu Ser Leu Gly Gly Val Ile Gly Thr
          20          25          30

Gly Leu Phe Leu Ser Ser Gly Tyr Thr Ile Ala Gln Ala Gly Pro Leu
          35          40          45

Gly Ala Val Leu Ser Tyr Leu Ile Gly Ala Val Val Val Tyr Leu Val
50          55          60

Met Leu Ser Leu Gly Glu Leu Ala Val Ala Met Pro Val Thr Gly Ser
65          70          75          80

Phe His Thr Tyr Ala Thr Lys Phe Ile Ser Pro Gly Thr Gly Phe Thr
          85          90          95

Val Ala Trp Leu Tyr Trp Ile Cys Trp Thr Val Ala Leu Gly Thr Glu
100          105          110

Phe Leu Gly Ala Ala Met Leu Met Gln Arg Trp Phe Pro Asn Val Pro
115          120          125

Ala Trp Ala Phe Ala Ser Phe Phe Ala Leu Val Ile Phe Gly Leu Asn
130          135          140

Ala Leu Ser Val Arg Phe Phe Ala Glu Ala Glu Ser Phe Phe Ser Ser
145          150          155          160

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Ile	Lys	Val	Ile	Ala	Ile	Ile	Ile	Phe	Ile	Ile	Leu	Gly	Leu	Gly	Ala			
				165					170					175				
Met	Phe	Gly	Leu	Val	Ser	Phe	Glu	Gly	Gln	His	Lys	Ala	Ile	Leu	Phe			
			180					185					190					
Thr	His	Leu	Thr	Ala	Asn	Gly	Ala	Phe	Pro	Asn	Gly	Ile	Val	Ala	Val			
		195					200					205						
Val	Ser	Val	Met	Leu	Ala	Val	Asn	Tyr	Ala	Phe	Ser	Gly	Thr	Glu	Leu			
	210					215					220							
Ile	Gly	Ile	Ala	Ala	Gly	Glu	Thr	Asp	Asn	Pro	Lys	Glu	Ala	Val	Pro			
225					230				235					240				
Arg	Ala	Ile	Lys	Thr	Thr	Ile	Gly	Arg	Leu	Val	Val	Phe	Phe	Val	Leu			
			245					250						255				
Thr	Ile	Val	Val	Leu	Ala	Ser	Leu	Leu	Pro	Met	Lys	Glu	Ala	Gly	Val			
		260					265					270						
Ser	Thr	Ala	Pro	Phe	Val	Asp	Val	Phe	Asp	Lys	Met	Gly	Ile	Pro	Phe			
	275					280					285							
Thr	Ala	Asp	Ile	Met	Asn	Phe	Val	Ile	Leu	Thr	Ala	Ile	Leu	Ser	Ala			
	290				295					300								
Gly	Asn	Ser	Gly	Leu	Tyr	Ala	Ser	Ser	Arg	Met	Leu	Trp	Ser	Leu	Ala			
305				310				315					320					
Asn	Glu	Gly	Met	Leu	Ser	Lys	Ser	Val	Val	Lys	Ile	Asn	Lys	His	Gly			
			325					330				335						
Val	Pro	Met	Arg	Ala	Leu	Leu	Leu	Ser	Met	Ala	Gly	Ala	Val	Leu	Ser			
		340					345				350							
Leu	Phe	Ser	Ser	Ile	Tyr	Ala	Ala	Asp	Thr	Val	Tyr	Leu	Ala	Leu	Val			
	355					360					365							
Ser	Ile	Ala	Gly	Phe	Ala	Val	Val	Val	Val	Trp	Leu	Ala	Ile	Pro	Val			
	370				375					380								
Ala	Gln	Ile	Asn	Phe	Arg	Lys	Glu	Phe										
385				390														

<210> 225

<211> 636

<212> DNA

<213> Streptococcus agalactiae

<400> 225

tcagaaaatg cagaggcagc aacgggttgcc acaaacttgg ttaccaaagg agctaattgtc 60

attatcggac cagcaacatc ggggtgcagct gcattcttcaa ctccaaaagt aaatgcagca 120

gcagttccaa tgattgcacc tgctgcgaca caagacaatt tagtctatgg ttctgatgga 180

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aaaaccttaa atcagtatctt cttccgagct acttttgtcg ataattatca aggaaagcta 240
ttgtctcagt atgctacaga caaccttaaa gctaaaaaag ttgttctatt ttatgataat 300
tcatcagatt actcaaaggg ggtagcaaaa tcatttaagg aaagttatag tggaaaaatt 360
gttgatagta tgacattctc cgctgggtgat actgatttcc aagcgtcatt gactaagttg 420
aaaggggaaag aatatgatgc tattgtgatg ccagggttact ataccgagac aggattaata 480
gttaagcaag cgcgtgattt aggtatctct aaaccgggttc ttgggcctga tggttttgat 540
agtcgaaat ttgtgcaatc ggcaacacct gtaggagctt caaacgttta ttatttgaca 600
ggtttcacta cacaaggatc aaccaagct aaagct 636

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<210> 226
<211> 212
<212> PRT
<213> Streptococcus agalactiae

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<400> 226

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Ser Glu Asn Ala Glu Ala Ala Thr Val Ala Thr Asn Leu Val Thr Lys
1          5          10          15
Gly Ala Asn Val Ile Ile Gly Pro Ala Thr Ser Gly Ala Ala Ala Ser
20          25          30
Ser Thr Pro Lys Val Asn Ala Ala Val Pro Met Ile Ala Pro Ala
35          40          45
Ala Thr Gln Asp Asn Leu Val Tyr Gly Ser Asp Gly Lys Thr Leu Asn
50          55          60
Gln Tyr Phe Phe Arg Ala Thr Phe Val Asp Asn Tyr Gln Gly Lys Leu
65          70          75          80
Leu Ser Gln Tyr Ala Thr Asp Asn Leu Lys Ala Lys Lys Val Val Leu
85          90          95
Phe Tyr Asp Asn Ser Ser Asp Tyr Ser Lys Gly Val Ala Lys Ser Phe
100         105         110
Lys Glu Ser Tyr Ser Gly Lys Ile Val Asp Ser Met Thr Phe Ser Ala
115         120         125
Gly Asp Thr Asp Phe Gln Ala Ser Leu Thr Lys Leu Lys Gly Lys Glu
130         135         140
Tyr Asp Ala Ile Val Met Pro Gly Tyr Tyr Thr Glu Thr Gly Leu Ile
145         150         155         160
Val Lys Gln Ala Arg Asp Leu Gly Ile Ser Lys Pro Val Leu Gly Pro
165         170         175

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Asp Gly Phe Asp Ser Pro Lys Phe Val Gln Ser Ala Thr Pro Val Gly  
180 185 190

Ala Ser Asn Val Tyr Tyr Leu Thr Gly Phe Thr Thr Gln Gly Ser Thr  
195 200 205

Lys Ala Lys Ala  
210

<210> 227  
<211> 270  
<212> DNA  
<213> Streptococcus agalactiae

<400> 227  
ttgggactta aagaccatgc tttagtctat ccattttcat tatctggggg gcaaaagcaa 60  
cgtgtcgcac tagctcgtgc gatgatgatt gatccacaga ttattgggta tgatgagcca 120  
actagcgctc ttgatccaga gttgcgtcaa gaagtagaaa aactaatttt acaaaataga 180  
gaaacaggta tgacacaaat tgtagtaaca catgatcttc aatttgctga aagtatatct 240  
gatacgattc tcaaaattaa tcctaagtag 270

<210> 228  
<211> 89  
<212> PRT  
<213> Streptococcus agalactiae

<400> 228

Met Gly Leu Lys Asp His Ala Leu Val Tyr Pro Phe Ser Leu Ser Gly  
1 5 10 15

Gly Gln Lys Gln Arg Val Ala Leu Ala Arg Ala Met Met Ile Asp Pro  
20 25 30

Gln Ile Ile Gly Tyr Asp Glu Pro Thr Ser Ala Leu Asp Pro Glu Leu  
35 40 45

Arg Gln Glu Val Glu Lys Leu Ile Leu Gln Asn Arg Glu Thr Gly Met  
50 55 60

Thr Gln Ile Val Val Thr His Asp Leu Gln Phe Ala Glu Ser Ile Ser  
65 70 75 80

Asp Thr Ile Leu Lys Ile Asn Pro Lys  
85

<210> 229  
<211> 204  
<212> DNA  
<213> Streptococcus agalactiae

<400> 229  
atgactaata tctcagatgt tccaaaagct attagaacac aggcacagta tgttctcttg 60  
ggaatgagag ttatggatca gtcggtatta ccgaaaacat ataattcaaa agaaccttat 120  
ttgaaaccag atatgattta tattcatgat agaagacaag agacaatgct taaaatcact 180  
caagaaatag aaatggagca ttga 204

<210> 230  
<211> 67  
<212> PRT  
<213> Streptococcus agalactiae

<400> 230  
Met Thr Asn Ile Ser Asp Val Pro Lys Ala Ile Arg Thr Gln Ala Gln  
1 5 10 15  
Tyr Val Leu Leu Gly Met Arg Val Met Asp Gln Ser Val Leu Pro Lys  
20 25 30  
Thr Tyr Asn Ser Lys Glu Pro Tyr Leu Lys Pro Asp Met Ile Tyr Ile  
35 40 45  
His Asp Arg Arg Gln Glu Thr Met Leu Lys Ile Thr Gln Glu Ile Glu  
50 55 60  
Met Glu His  
65

<210> 231  
<211> 1411  
<212> DNA  
<213> Streptococcus agalactiae

<400> 231  
aagcttgcac gcctgcaggt cgactctaga ggatcttggg gaataataat ttggatttca 60  
tgacgatgta aagccaattt attctacggg aaaaggtcta aatgaggctg ttattcgtga 120  
gttatctgca gctaagggtg aacctgagtg gatgttggac tttcgtctaa aatccttgga 180  
aacgtttaat aaaatgccga tgcagacctg gggagcagat ttatcagata ttgattttga 240  
tgatattatt tattatcaaa aagcatctga taaacctgcg cgtgattggg atgatgttcc 300  
agaaaaaatc aaagaaactt ttgaaagaat tgggattcca gaagctgaaa gagcctatct 360  
tgcaggagca tcagcacaat atgaatcaga agtagtttat cacaatatga aagaagaata 420  
tgataagctg ggtattgttt ttacggatac tgactctgca cttaaagagt acccagagct 480  
attcaaaaaa tatttttgcta aacttgtccc tccaacagat aataaattag ctgctctgaa 540  
ctctgctgta tggtcaggtg gaacatttat ttatgttcct aaaggtgtta aggtggatat 600

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tccacttcaa acttacttcc gtattaataa tgaaaatact ggacaatttg aacgtactct 660
cattattggt gatgagggag caagtgttca ctatgttgaa ggttgtagcg ccccaactta 720
ttcttcaa atgtttacatg cagctatagt tgaaattttt gcacttgatg gagcttatat 780
gcgctatacg actattcaaa attgggtccga taatgtctat aatttagtga caaaacgtgc 840
taccgctaaa aaagatgcaa cagttgagtg gatagatgga aatctaggag ctaaaacaac 900
aatgaaatac ccatcggttt accttgatgg tgaaggagca cgtggcacga tggtgtctat 960
tgcttttgca aacaaaggac aacaccaaga tacgggtgca aagatgattc ataatgcccc 1020
ccatactagt tcatccattg tctctaaatc aattgctaag ggtgggggaa aagttgatta 1080
tcgaggtcaa gtgacattta ataaagattc caaaaaatca gtgtcacata tagaatgtga 1140
caccatattg atggatgata tttcaaaatc agataccata ccgtttaatg agattcataa 1200
ttcacagggt gcttttagagc atgaagcaaa ggtgtctaag atttctgaag agcaactgta 1260
ctacttgatg agtcgaggtt tatctgaagc tgaagcaaca gaaatgattg ttatgggggt 1320
tggtgagccc ttacgaaag aattaccaat ggaatatgcg gtagagttaa atcgtttaat 1380
ttcctatgaa atggaagggt cagttgggta a 1411

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<210> 232

<211> 468

<212> PRT

<213> Streptococcus agalactiae

<400> 232

```

Met His Ala Cys Arg Ser Thr Leu Glu Asp Leu Gly Glu Tyr Lys Phe
1          5          10          15

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```

Gly Phe His Asp Asp Val Lys Pro Ile Tyr Ser Thr Gly Lys Gly Leu
          20          25          30

```

```

Asn Glu Ala Val Ile Arg Glu Leu Ser Ala Ala Lys Gly Glu Pro Glu
          35          40          45

```

```

Trp Met Leu Asp Phe Arg Leu Lys Ser Leu Glu Thr Phe Asn Lys Met
          50          55          60

```

```

Pro Met Gln Thr Trp Gly Ala Asp Leu Ser Asp Ile Asp Phe Asp Asp
65          70          75          80

```

```

Ile Ile Tyr Tyr Gln Lys Ala Ser Asp Lys Pro Ala Arg Asp Trp Asp
          85          90          95

```

```

Asp Val Pro Glu Lys Ile Lys Glu Thr Phe Glu Arg Ile Gly Ile Pro
          100          105          110

```

Glu	Ala	Glu	Arg	Ala	Tyr	Leu	Ala	Gly	Ala	Ser	Ala	Gln	Tyr	Glu	Ser	115	120	125
Glu	Val	Val	Tyr	His	Asn	Met	Lys	Glu	Glu	Tyr	Asp	Lys	Leu	Gly	Ile	130	135	140
Val	Phe	Thr	Asp	Thr	Asp	Ser	Ala	Leu	Lys	Glu	Tyr	Pro	Glu	Leu	Phe	145	150	155
Lys	Lys	Tyr	Phe	Ala	Lys	Leu	Val	Pro	Pro	Thr	Asp	Asn	Lys	Leu	Ala	165	170	175
Ala	Leu	Asn	Ser	Ala	Val	Trp	Ser	Gly	Gly	Thr	Phe	Ile	Tyr	Val	Pro	180	185	190
Lys	Gly	Val	Lys	Val	Asp	Ile	Pro	Leu	Gln	Thr	Tyr	Phe	Arg	Ile	Asn	195	200	205
Asn	Glu	Asn	Thr	Gly	Gln	Phe	Glu	Arg	Thr	Leu	Ile	Ile	Val	Asp	Glu	210	215	220
Gly	Ala	Ser	Val	His	Tyr	Val	Glu	Gly	Cys	Thr	Ala	Pro	Thr	Tyr	Ser	225	230	235
Ser	Asn	Ser	Leu	His	Ala	Ala	Ile	Val	Glu	Ile	Phe	Ala	Leu	Asp	Gly	245	250	255
Ala	Tyr	Met	Arg	Tyr	Thr	Thr	Ile	Gln	Asn	Trp	Ser	Asp	Asn	Val	Tyr	260	265	270
Asn	Leu	Val	Thr	Lys	Arg	Ala	Thr	Ala	Lys	Lys	Asp	Ala	Thr	Val	Glu	275	280	285
Trp	Ile	Asp	Gly	Asn	Leu	Gly	Ala	Lys	Thr	Thr	Met	Lys	Tyr	Pro	Ser	290	295	300
Val	Tyr	Leu	Asp	Gly	Glu	Gly	Ala	Arg	Gly	Thr	Met	Leu	Ser	Ile	Ala	305	310	315
Phe	Ala	Asn	Lys	Gly	Gln	His	Gln	Asp	Thr	Gly	Ala	Lys	Met	Ile	His	325	330	335
Asn	Ala	Pro	His	Thr	Ser	Ser	Ser	Ile	Val	Ser	Lys	Ser	Ile	Ala	Lys	340	345	350
Gly	Gly	Gly	Lys	Val	Asp	Tyr	Arg	Gly	Gln	Val	Thr	Phe	Asn	Lys	Asp	355	360	365
Ser	Lys	Lys	Ser	Val	Ser	His	Ile	Glu	Cys	Asp	Thr	Ile	Leu	Met	Asp	370	375	380
Asp	Ile	Ser	Lys	Ser	Asp	Thr	Ile	Pro	Phe	Asn	Glu	Ile	His	Asn	Ser	385	390	395
Gln	Val	Ala	Leu	Glu	His	Glu	Ala	Lys	Val	Ser	Lys	Ile	Ser	Glu	Glu	405	410	415

Gln Leu Tyr Tyr Leu Met Ser Arg Gly Leu Ser Glu Ala Glu Ala Thr  
 420 425 430

Glu Met Ile Val Met Gly Phe Val Glu Pro Phe Thr Lys Glu Leu Pro  
 435 440 445

Met Glu Tyr Ala Val Glu Leu Asn Arg Leu Ile Ser Tyr Glu Met Glu  
 450 455 460

Gly Ser Val Gly  
 465

<210> 233  
 <211> 261  
 <212> DNA  
 <213> Streptococcus agalactiae

<400> 233  
 atgatagaat tcttttctaa tatcagaaca gagattccgc agatgccttt acttatccat 60  
 agtttgattt tatctgtctt accttttctg atgtggctga ctttggttaa tagagataag 120  
 cctttgtata aaactatttg gagtatacctt ttaggacttc agttaattac gatttatact 180  
 tggtttttct gggcaaaatt gcctttatct gaaagtcttc ccctttacca ttgtcgaata 240  
 ggcattgttg tcggtctctt a 261

<210> 234  
 <211> 87  
 <212> PRT  
 <213> Streptococcus agalactiae

<400> 234

Met Ile Glu Phe Phe Ser Asn Ile Arg Thr Glu Ile Pro Gln Met Pro  
 1 5 10 15

Leu Leu Ile His Ser Leu Ile Leu Ser Val Leu Pro Phe Leu Met Trp  
 20 25 30

Leu Thr Leu Val Asn Arg Asp Lys Pro Leu Tyr Lys Thr Ile Trp Ser  
 35 40 45

Ile Leu Leu Gly Leu Gln Leu Ile Thr Ile Tyr Thr Trp Phe Phe Trp  
 50 55 60

Ala Lys Leu Pro Leu Ser Glu Ser Leu Pro Leu Tyr His Cys Arg Ile  
 65 70 75 80

Gly Met Phe Val Gly Leu Leu  
 85

<210> 235  
 <211> 486

<212> DNA

<213> Streptococcus agalactiae

<400> 235

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aagcttgtgc aaagtattaa agagatagga ttagctaatacg cgcattttatt agctgttgct      60
ccgacagggt caatcagtta tctttcttct tgtactccga gccttcaacc ggttgatatca      120
cctgtcgaag tacgcaagga aggagcactg gggagggttt atgtagctgc ttataagatt      180
gatgcagata attatgtcta ctacaaaaaa ggagcttatg aagtgggatc tgaggcgatt      240
atcaatattg cagctgccgc tcaaaaacac attgatcaag ctatttcggt aacgcttttc      300
atgacagatc aagcaactac gcgagattta aataaagcct atattcaagc atttaaacia      360
aatgtgcct ctatttatta tgtacgagtg agacaggaca tcctagaagg tagcgagagt      420
tatgatgata tgctggatga tttcacttca tcggacttag aagactgtca atcctgcatg      480
atttaa                                         486
```

<210> 236

<211> 161

<212> PRT

<213> Streptococcus agalactiae

<400> 236

```
Lys Leu Val Gln Ser Ile Lys Glu Ile Gly Leu Ala Asn Ala His Leu
1              5              10              15

Leu Ala Val Ala Pro Thr Gly Ser Ile Ser Tyr Leu Ser Ser Cys Thr
                20              25              30

Pro Ser Leu Gln Pro Val Val Ser Pro Val Glu Val Arg Lys Glu Gly
          35              40              45

Ala Leu Gly Arg Val Tyr Val Ala Ala Tyr Lys Ile Asp Ala Asp Asn
50 ,              55              60

Tyr Val Tyr Tyr Lys Lys Gly Ala Tyr Glu Val Gly Ser Glu Ala Ile
65              70              75              80

Ile Asn Ile Ala Ala Ala Ala Gln Lys His Ile Asp Gln Ala Ile Ser
          85              90              95

Leu Thr Leu Phe Met Thr Asp Gln Ala Thr Thr Arg Asp Leu Asn Lys
          100              105              110

Ala Tyr Ile Gln Ala Phe Lys Gln Lys Cys Ala Ser Ile Tyr Tyr Val
115              120              125

Arg Val Arg Gln Asp Ile Leu Glu Gly Ser Glu Ser Tyr Asp Asp Met
130              135              140
```

Leu	Asp	Asp	Phe	Thr	Ser	Ser	Asp	Leu	Glu	Asp	Cys	Gln	Ser	Cys	Met
145					150					155					160

Ile

<210> 237  
 <211> 413  
 <212> DNA  
 <213> Streptococcus agalactiae

<400> 237  
 gtgaggacat atattacaaa cttgaatgga cattcaatca ctagtacagc acaaatagct 60  
 caaaacatgg taacagatat agcagtaagc ttaggttttc gtgagctggg aatacattct 120  
 tatccgattg atactgattc tcctgaggaa atgagtaagc gtttagatgg aatctgttcc 180  
 ggacttagaa aaaatgatat tgtcatatth cagacaccta catggaacac tacaactttt 240  
 gatgaaaaat tatttcacaa attaaaaata tttggtgtaa agattgttat ttttatacat 300  
 gatgttgtac cgctaagtgt tgatggaaat ttttatttga tggatagaac tatagcttat 360  
 tataatgaag cagatgttta atagccccta gtcaagcaat ggtagataag ctt 413

<210> 238  
 <211> 138  
 <212> PRT  
 <213> Streptococcus agalactiae

<400> 238

Met	Arg	Thr	Tyr	Ile	Thr	Asn	Leu	Asn	Gly	His	Ser	Ile	Thr	Ser	Thr
1				5					10					15	
Ala	Gln	Ile	Ala	Gln	Asn	Met	Val	Thr	Asp	Ile	Ala	Val	Ser	Leu	Gly
			20					25					30		
Phe	Arg	Glu	Leu	Gly	Ile	His	Ser	Tyr	Pro	Ile	Asp	Thr	Asp	Ser	Pro
		35					40					45			
Glu	Glu	Met	Ser	Lys	Arg	Leu	Asp	Gly	Ile	Cys	Ser	Gly	Leu	Arg	Lys
	50					55					60				
Asn	Asp	Ile	Val	Ile	Phe	Gln	Thr	Pro	Thr	Trp	Asn	Thr	Thr	Thr	Phe
65					70					75					80
Asp	Glu	Lys	Leu	Phe	His	Lys	Leu	Lys	Ile	Phe	Gly	Val	Lys	Ile	Val
			85					90						95	
Ile	Phe	Ile	His	Asp	Val	Val	Pro	Leu	Met	Phe	Asp	Gly	Asn	Phe	Tyr
			100					105					110		
Leu	Met	Asp	Arg	Thr	Ile	Ala	Tyr	Tyr	Asn	Glu	Ala	Asp	Val	Leu	Ile
		115					120					125			

Ala Pro Ser Gln Ala Met Val Asp Lys Leu  
130 135

<210> 239  
<211> 261  
<212> DNA  
<213> Streptococcus agalactiae

<400> 239  
catggaaatg aagttgatga tgttattaga agggcatttg aatataatca ccttatcttt 60  
gcttttgata atacctgtca taacagagag ttagtattag atagcaatat catttctcac 120  
acaacctgtg aacaattgat aaatttaatg aaaaatttat caggctccat tatgtatttg 180  
ctagagcaac aaagagaaca aacaagtaat gaaacaaaag agcgttataa agaaatatta 240  
ggagggtatg gaaatgccta a 261

<210> 240  
<211> 86  
<212> PRT  
<213> Streptococcus agalactiae

<400> 240  
His Gly Asn Glu Val Asp Asp Val Ile Arg Arg Ala Phe Glu Tyr Asn  
1 5 10 15  
His Leu Ile Phe Ala Phe Asp Asn Thr Cys His Asn Arg Glu Leu Val  
20 25 30  
Leu Asp Ser Asn Ile Ile Ser His Thr Thr Cys Glu Gln Leu Ile Asn  
35 40 45  
Leu Met Lys Asn Leu Ser Gly Ser Ile Met Tyr Leu Leu Glu Gln Gln  
50 55 60  
Arg Glu Gln Thr Ser Asn Glu Thr Lys Glu Arg Tyr Lys Glu Ile Leu  
65 70 75 80  
Gly Gly Tyr Gly Asn Ala  
85

<210> 241  
<211> 312  
<212> DNA  
<213> Streptococcus agalactiae

<400> 241  
acatttttat attatgtatt tgaagacgta gccacccagt caaatatgac tgggaagatt 60  
ttagtatgt ctaaagaaga gttgtcatat ttacccgtta ttaactttt taagaatcaa 120  
ggtgtataca acggcttgat tggtctattc ctcctttatg gggttatatat ttcacagaat 180

caagaaattg tagctatttt tttaatcaat gtgttgctag ttgctgttta tgggtgctttg 240  
acagttgata aaaaaatctt attaaaacag ggtgggtttac ctatattagc tcttttaaca 300  
ttcttatttt aa 312

<210> 242  
<211> 103  
<212> PRT  
<213> Streptococcus agalactiae  
<400> 242

Thr Phe Leu Tyr Tyr Val Phe Glu Asp Val Ala Thr Gln Ser Asn Met  
1 5 10 15  
Thr Gly Lys Ile Phe Ser Met Ser Lys Glu Glu Leu Ser Tyr Leu Pro  
20 25 30  
Val Ile Lys Leu Phe Lys Asn Gln Gly Val Tyr Asn Gly Leu Ile Gly  
35 40 45  
Leu Phe Leu Leu Tyr Gly Leu Tyr Ile Ser Gln Asn Gln Glu Ile Val  
50 55 60  
Ala Ile Phe Leu Ile Asn Val Leu Leu Val Ala Val Tyr Gly Ala Leu  
65 70 75 80  
Thr Val Asp Lys Lys Ile Leu Leu Lys Gln Gly Gly Leu Pro Ile Leu  
85 90 95  
Ala Leu Leu Thr Phe Leu Phe  
100

<210> 243  
<211> 588  
<212> DNA  
<213> Streptococcus agalactiae

<400> 243  
atgaaattaa gtgtccttga ttatgggctt attgattatg gaaaaactgc aagtgatgca 60  
atacaagaaa cgattctttt atcacaagag gcggagcaac taggctatca tcaattttgg 120  
gtggctgaac atcacggtgt taaggcattc agtattagca atccagaatt aatgataatg 180  
catttggtga accagactaa atctatcaaa attggctctg gaggtataat gcctctgcac 240  
tatagtagtt ttaaactcgc ggagactctc aagacattag agacatgtca tccgaatcga 300  
gtaagtattg gtttaggaaa ttcactaggg acagttaaag tttcaaatgc acttcgtagc 360  
ttacataaag cacatgatta cgaagaggta ctggaggaat tgaagtcatt gcttattgat 420  
gaatcatcca gtaaggaacc attagttcaa ccgactcttt ctagcttccc agacttatat 480

gtggttgggga gtggtcaaaa atcagcttat ttagcggcta aacttggctt aggctttacc 540

ttcgggtgttt ttccttttat ggacaaagac ccattgacag aagctaaa 588

<210> 244

<211> 196

<212> PRT

<213> Streptococcus agalactiae

<400> 244

Met Lys Leu Ser Val Leu Asp Tyr Gly Leu Ile Asp Tyr Gly Lys Thr  
1 5 10 15

Ala Ser Asp Ala Ile Gln Glu Thr Ile Leu Leu Ser Gln Glu Ala Glu  
20 25 30

Gln Leu Gly Tyr His Gln Phe Trp Val Ala Glu His His Gly Val Lys  
35 40 45

Ala Phe Ser Ile Ser Asn Pro Glu Leu Met Ile Met His Leu Ala Asn  
50 55 60

Gln Thr Lys Ser Ile Lys Ile Gly Ser Gly Gly Ile Met Pro Leu His  
65 70 75 80

Tyr Ser Ser Phe Lys Leu Ala Glu Thr Leu Lys Thr Leu Glu Thr Cys  
85 90 95

His Pro Asn Arg Val Ser Ile Gly Leu Gly Asn Ser Leu Gly Thr Val  
100 105 110

Lys Val Ser Asn Ala Leu Arg Ser Leu His Lys Ala His Asp Tyr Glu  
115 120 125

Glu Val Leu Glu Glu Leu Lys Ser Trp Leu Ile Asp Glu Ser Ser Ser  
130 135 140

Lys Glu Pro Leu Val Gln Pro Thr Leu Ser Ser Phe Pro Asp Leu Tyr  
145 150 155 160

Val Leu Gly Ser Gly Gln Lys Ser Ala Tyr Leu Ala Ala Lys Leu Gly  
165 170 175

Leu Gly Phe Thr Phe Gly Val Phe Pro Phe Met Asp Lys Asp Pro Leu  
180 185 190

Thr Glu Ala Lys  
195

<210> 245

<211> 40

<212> DNA

<213> Artificial

<220>

<223> Primer

<400> 245

cgagatctga tatctcacia acagataacg gcgtaaatag

40

<210> 246

<211> 43

<212> DNA

<213> Artificial

<220>

<223> Primer

<400> 246

gaagatcttc cccgggatca caaacagata acggcgtaaa tag

43

<210> 247

<211> 42

<212> DNA

<213> Artificial

<220>

<223> Primer

<400> 247

cgagatctga tatccatcac aaacagataa cggcgtaaata ag

42

<210> 248

<211> 32

<212> DNA

<213> Artificial

<220>

<223> Primer

<400> 248

cgggatcctt atggacctga atcagcgttg tc

32

<210> 249

<211> 23

<212> DNA

<213> Artificial

<220>

<223> Primer

<400> 249

ggatgctttg tttcaggtgt atc

23

<210> 250

<211> 82

<212> DNA  
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<220>  
<223> Primer

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ttagcggata acaatttcac ac 82

<210> 251  
<211> 81  
<212> DNA  
<213> Artificial

<220>  
<223> Primer

<400> 251  
gcggatcccc cgggcttaat taatgtttaa acactagtcg aagatctcgc gaattctcct 60  
gtgtgaaatt gttatccgct a 81

<210> 252  
<211> 24  
<212> DNA  
<213> Artificial

<220>  
<223> Primer

<400> 252  
cgccagggtt ttcccagtcg cgac 24

<210> 253  
<211> 20  
<212> DNA  
<213> Artificial

<220>  
<223> Primer

<400> 253  
tcaggggggc ggagcctatg 20

<210> 254  
<211> 22  
<212> DNA  
<213> Artificial

<220>  
<223> Primer

<400> 254

tcgtatgttg tgtggaattg tg

22

<210> 255  
<211> 26  
<212> DNA  
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<220>  
<223> Primer

<400> 255  
tccggctcgt atgttggtg gaattg

26

<210> 256  
<211> 43  
<212> DNA  
<213> Artificial

<220>  
<223> pTREP1-nuc1 vector

<400> 256  
aagtatcaga tctgatatct cacaaacaga taacggcgta aat

43

<210> 257  
<211> 46  
<212> DNA  
<213> Artificial

<220>  
<223> pTREP1-nuc2 vector

<400> 257  
aagtatcaga tcttccccgg gatcacaaac agataacggc gtaa

46

<210> 258  
<211> 45  
<212> DNA  
<213> Artificial

<220>  
<223> pTREP1-nuc3 vector

<400> 258  
aagtatcaga tctgatatcc atcacaaaca gataacggcg taa

45

<210> 259  
<211> 24  
<212> DNA  
<213> Staphylococcus aureus

<400> 259  
tcacaaacag ataacggcgt aaat

24

<210> 260  
<211> 17  
<212> DNA  
<213> Artificial

<220>  
<223> Primer

<400> 260  
cgggatccgc caccatg

17

<210> 261  
<211> 10  
<212> DNA  
<213> Artificial

<220>  
<223> Primer

<400> 261  
ttgcggccgc

10

<210> 262  
<211> 38  
<212> DNA  
<213> Artificial

<220>  
<223> Primer

<400> 262  
cggatccgcc accatggcgg atcaaactac atcggttc

38

<210> 263  
<211> 36  
<212> DNA  
<213> Artificial

<220>  
<223> Primer

<400> 263  
ttgcggccgc gttgggataa ctagtcggtt tagtcg

36

<210> 264  
<211> 44  
<212> DNA  
<213> Artificial

<220>

<223> Primer

<400> 264

cggatccgcc accatgaatc tttatttcca tagtactccc ttgc

44

<210> 265

<211> 37

<212> DNA

<213> Artificial

<220>

<223> Primer

<400> 265

ttgcggccgc aaaatgatca gtttgagggt aaaagag

37

<210> 266

<211> 31

<212> DNA

<213> Artificial

<220>

<223> Primer

<400> 266

catgccatgg cggatcaaac tacatcggtt c

31

<210> 267

<211> 37

<212> DNA

<213> Artificial

<220>

<223> Primer

<400> 267

catgccatgg caaaaatagt agtaccagta atgcctc

37

<210> 268

<211> 32

<212> DNA

<213> Artificial

<220>

<223> Primer

<400> 268

ttgcggccgc ctctgaaata gtaatttgct cg

32

<210> 269  
<211> 35  
<212> DNA  
<213> Artificial

<220>  
<223> Primer

<400> 269  
catgccatgg gaaagaaagc aaataatgtc agtcc

35

<210> 270  
<211> 31  
<212> DNA  
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<220>  
<223> Primer

<400> 270  
ttgcggccgc attgggtgta agcatttttt c

31

<210> 271  
<211> 37  
<212> DNA  
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<220>  
<223> Primer

<400> 271  
catgccatgg gaactgagaa ctggttacat actaaag

37

<210> 272  
<211> 33  
<212> DNA  
<213> Artificial

<220>  
<223> Primer

<400> 272  
ttgcggccgc attagctttt tcaacaattt etc

33

<210> 273  
<211> 28  
<212> DNA  
<213> Artificial

<220>  
<223> Primer

<400> 273

ctagctagcc gatgtttgcg tgggaaag

28

<210> 274  
<211> 40  
<212> DNA  
<213> Artificial

<220>  
<223> Primer

<400> 274  
ttgcggccgc ataagattta acaataccaa gtaatatagc

40

<210> 275  
<211> 39  
<212> DNA  
<213> Artificial

<220>  
<223> Primer

<400> 275  
ggggtaccgg ccaccatggc tgaagtaatt tcaggaagt

39

<210> 276  
<211> 39  
<212> DNA  
<213> Artificial

<220>  
<223> Primer

<400> 276  
cggaattccg ttaatcctct ttttttctta gaaacagat

39